



BUNGOMA COUNTY SPATIAL PLAN (2015-2025)

PREPARED BY TWO EMS ASSOCIATES LIMITED FOR
THE COUNTY GOVERNMENT OF BUNGOMA

Acknowledgements

Spatial planning is a demanding and efficient integrated approach of designating activities on space. The spatial plan desires to ensure sustainability, environmental protection, economic performance, delivery of a wide range of infrastructure for transport, energy and social amenities, and sufficient housing supply, through qualitative and quantitative sectoral strategies and proposals that will guide in the provision of an integrated service delivery for Bungoma County's residents.

The Spatial Plan was prepared through an integrated consultative process involving various stakeholders from both the County and the National Government, that included across range of the Bungoma citizenry, with valuable recognition accorded to the county's leadership beginning with H.E The Governor of Bungoma County Hon. Kenneth Lusaka, a mix of stakeholders and administrators representing all wards, a mix of political leaders, members of County Assembly and sub-county administrators.

Valuable recognition is also given to both the County and National Government officials for providing a third eye on the final outputs of this County Spatial Plan.

God Bless you all

Executive Summary

Background

Bungoma County Government is mandated through the County Government Act of 2012 to prepare a GIS-based County Spatial Development Plan covering a period of 10 years (2015 to 2025) as a broad framework for organizing and distributing population and activities in the County to achieve both national and county development objectives. This joins up and coordinates the implementation of sectoral projects and programs to mitigate duplication of efforts and scarce resources. The preparation process of the plan is informed through; past expired often, sectoral plans lacking clear geographical/ spatial details, with poor implementation records and not in tandem with the new paradigm shift provided for by Kenya's 2010 Constitution.

Vision

The journey to the Bungoma Spatial Plan preparation process was premised on a vision “ if you don't know where you're going any road will get you there” driven through three objectives; change targets, understanding and definition of the current and desired state, and problems. This informed a dream or a desired future of “a regionally competitive county driven by sustainable resource utilization and good governance, to achieve vibrant economic growth, equitable and transparent resource distribution and a high quality of citizens lives.” driven through a roadmap of spatial plan preparation process that includes among others; public participation, multi-sectoral consultation and engagement, GIS based mapping approaches and evidence-based policies and strategies.

Outcomes

The plan identifies programs and projects on land development, delineation of urban edges, designation of sensitive conservation areas and importantly the drivers, enablers, constraints and indicative areas designated to conservation within the county, among other proposals. It concludes with among others broad mechanism for synergizing integration mechanisms between sectors such as human settlements, economy, integrated transportation, infrastructure and environment.

Process

The County Spatial Development Plan is an output of a lengthy planning process, incorporating detailed literature review, comprehensive field surveys and robust engagements with local stakeholders through sub-county-specific forums, various meetings with the broad based stakeholders, starting from the households level, stratified groups, political leadership, county executives and MCAs, and technical review forums incorporating both National and County planning technocrats.

This County Spatial Development Plan was not prepared in a vacuum but build upon the aspirations of previous integrated visions and resultant plans. The CSDP is prepared within national constitution, policies, legal and institutional context. The 2010 constitution created devolved planning and development units with entrenched public participation in all the process while the Kenya Vision 2030 envisages a sustained average growth of 10% per annum over the next two decades.

The planning process took cognizance of other policies and legislations in place as guidelines for spatial development such as the draft National Spatial Plan, National Land Policy 2009, the Industrialization Strategy and the County Integrated Development Plan (2013 -2017). Various Acts within whose regimes this plan has been prepared include the County Government Act, 2012; The Physical Planning Act, Cap 286; Urban Areas and Cities Act; Environment Management and Coordination Act; Water Act; Land Act; National Land Commission Act; Forest Act chapter 385; and the Special Economic Zones Act. Bungoma County Government as an institutions to oversight the implementation and ensure proper coordination of the plan and the main actors for implementation at the County level, with a myriad of challenges including financial, staffing and equipment

Inclusiveness

To understand and address the concerns of all the sections of the society was key aspect of stakeholder involvement and crucial component of inclusive planning; an understanding of the needs, perception and suggestions was key in the process. The interaction with the cross-section of stakeholders that the CSDP anticipate and direct the development within the County, is/was desired to facilitate understanding of economic equity across all wards/county, propose enough alternative sources of livelihoods opportunities, provide effective governance and security, all geared and oriented towards poverty alleviation, overall addressing inequality in the planning and implementation process, through inclusive planning.

Benchmarking

With a view of utilizing the best experiences of different countries/regions in the process of development and the consequent transformation of the County into a regionally competitive economy, a review of different parameters/characters of world countries/regions has been carried out. Some best practices such as Madagascar World Bank funded Spatial Development Initiative; with outcomes of spurring selected regional growth poles and the outcomes, the Gujarat application of Investment summits coupled with the Soil Health Card scheme towards rural transformation through agriculture innovations among others. These have been applied as some of the best practices in the plan formulation process

Synopsis of the County

Bungoma County, 3032.4 km² in size, is located in western Kenya, bordering Busia, Kakamega, Transzoia Counties, as well as Uganda, making it a strategic gateway to East Africa. The County is home to a population of approximately

1,486,745 people (3.6% of the total national population), most of whom are aged between 15-64%, and growing at a rate of 3.1%.

The county economy is mainly agricultural-driven, with the sector contributing approximately Ksh.137 Billion in 2015; Ksh.131B from crop agriculture, Ksh.5.7B from livestock, with contributions from other sectors being largely undocumented and negligible. The vision 2030 envisages a sustained average growth of 10% per annum over the next two decades that implies that the size of the economy will have to double in every seven years. The challenges for achieving higher economic growth in the county are mainly the monoculture economy (sugar-driven requiring diversification), little modernization and infrastructure bottlenecks. The sector requires modern educational systems-skills that are innovation-oriented, strengthening trade, commerce and business activities, environmental sustainability, removing political volatility and incidences of insecurity. Bungoma possesses huge economic potentials such as agricultural sector diversification and marketing including value addition. The mission for the County is to build a regional competitive and inclusive economy for prosperity, with services/hubs, regional trade and businesses built around the truck economy.

Trade and industry is an important aspect of Bungoma's economy with a majority of enterprises qualifying as Micro and Small enterprises. However this sector is constrained by a lack of comprehensive county pro-MSME policies, lack of markets and their seasonality, poor road conditions and inadequate capital. The main drivers of industrialization in the county include the county's strategic location, existence of raw materials, existing infrastructure (in Webuye, the laid down infrastructure in terms of road network, sewer and water systems, housing

could be used for industrial promotion in the area) and proximity to regional markets.

Settlement pattern of a County affects its overall economic, social cohesion, political stability and environmental sustainability. Bungoma settlements are structured along transport networks, agricultural resources and trade function in the urban areas. As a result, there are three distinct settlement structures in Bungoma: dispersed settlements in rural areas, clustered settlements in urban areas and linear settlements along major roads. Based on the population of centers, their services and the role played, three categories urban centers was established: Growth/Urban, Rural and Market Centres. The main challenges facing settlements include rapid unplanned urbanization and urban sprawl, encroachment on ecologically fragile areas, lack of updated physical plans for most towns, and poorly serviced and underperforming rural areas

Transport network in the County is a multimodal comprising road, railways and airstrips and utility lines. International Trunk Roads A104 and A1pass through the County, catering for international traffic, enabling movement of traffic from Mombasa Port to/ from neighboring land locked countries of Uganda, Rwanda and South Sudan The main transportation means in Bungoma County is road transport that has a network mainly of earth/ murrum roads (1128km earth surface roads, 509km gravel surface roads and 154km bituminous surface). The Class A1 and A104 roads form the major arterial roads that make Bungoma the gateway into Uganda, Rwanda, Burundi, the DRC Congo and South Sudan as well as to major Counties like Mombasa, Nairobi and Transzoia. Other Class C roads link Bungoma to major towns such as Kisumu, Kakamega, Mumias and Busia as well as the towns and its hinterlands. While the county road network is fairly well developed, there

are several rural areas impassable especially during rainy season hindering transportation of agricultural produce, access to services and trade. In the urban areas, transportation challenges include poor traffic segregation, inadequate parking, encroachment on road reserves and traffic congestion. The county rail and air transportation networks (the Kenya-Uganda railway line and the two airstrips in Bungoma and Webuye) are largely under-utilized.

The major sources of water in the county are rivers, wells and spring though there are also boreholes, wells, dams and piped water vendors which serve the population. There are four urban and six rural water supply schemes in the County, with the urban water supply schemes mainly piped and operated by L. Victoria NWSB. The water service provider in the county is Nzoia Water and Sanitation Company (NZOWASCO) which supplies about 40,000-60,000m³ of water. The water reticulation system is mainly found within major urban areas of Bungoma, Kanduyi, Kimili and Webuye, though the network is generally poorly maintained. There are no existing water treatment plants. Water supply in the rural areas of the county is generally poor with people having to travel long distances to access water (average distance to water sources in rural areas is 1.5km compared to 0.5km in urban areas).

The county has limited coverage of sewer networks operating within Kimilili, Bungoma and Webuye towns and only one underutilized sewer treatment plant in Bungoma Township. Due to the inadequate urban sewerage coverage, most residents use septic tanks and latrines. The rural population relies on pit latrines and bush for disposal which contributes to pollution of underground and ground water sources. 61% of the households use compost pit for solid waste disposal while 25% burn most of which are in rural areas. In terms of solid waste, there is poor management of solid waste especially in the urban areas due to undesignated dumping sites resulting to environmental pollution.

Kenya Power and Lightning Company is the main supplier of electricity, with demand for energy in the county being 11,115W for domestic users and 3,381W for industrial use. The power supply network is unevenly distributed, with only 26,000 customers. There is high demand for electricity in the county but the inability to purchase the required infrastructure due to the high costs involved is the problem. In the urban areas, only 14% of the population was electrified as by 2009, below the average for Kenya while less than 2% of rural residents are electrified. There are usually incidences of frequent black outs which needs urgent action coupled with investment in alternative green energy sources, also additional transformers and substations to provide increasing power demand.

In terms of social infrastructure, the County has 11 hospitals, 18 health centres, 97 dispensaries, 36 medical clinics, 6 nursing homes and one laboratory and VCT centre. The health infrastructure status is characterized by inadequate/uneven distribution of medical facilities and personnel, and poor access to the due to the bad road conditions, lack of facilities and medical drugs among others. There is need to have well equipped health centres in each sub-county. In the education sector, the County has 1,000 primary schools (public 699 and 301 private). The secondary schools are 287 in number (275 public and 12 private), while there are 99 higher learning institutions. Enrolment in primary and secondary schools is 75% and 52.1% respectively, with a teacher/pupil ratio of 1:51. The challenges facing the education sector include inadequate number of teaching personnel, poorly equipped learning institutions and unmotivated teaching staff.

Internet is found only in major urban areas such as Bungoma, Webuye and Kimilili. Majority of the residents have mobile phones or can access a mobile phone to make a call. The only challenge for some households is unreliability of network in some places and lack of power to recharge the mobile phones. Newspapers are available mostly

in major urban centres. The post offices are found in the major urban centres. There is only one national library in Bungoma County which is situated in Kimilili. In terms of recreation, the options include playgrounds mostly found in education institutions, and existing stadium//open spaces in the county such as Masinde Muliro stadium, Nzoia stadium, Pan-paper stadium, Mbakalo stadium, Sirisia stadium, Mutala stadium and Mayuba stadium which are inadequate and poorly maintained. The county has identified high altitude training centre at Chemoge in Mt. Elgon.

Synthesis

The spatial structure demonstrates various influencing factors such as strategic geographic location; gateway to Uganda, physical features, urban-rural interface, a structure of land tenure, transport structure, settlement structure, land and use structure. For this multi-disciplinary undertaking, different types of data, through primary and secondary sources have been collected and collated. All these have been studied in detail to understand the existing scenario, prevailing strategies, norms and acts and identify the development issues and gaps of different urban and rural sectors. In conclusion to the assessment three key parameters of the County have been diagnosed; ‘space’ as a field, ‘space’ as activity, ‘space’ as structuring economic incentives and its comparative competitive advantages to development and potential investors.

The various challenges and opportunities that face the County inform the spatial development vision, goal and objectives and implementation strategies. Overall the pressing county constraints include; deforestation, soil degradation, flooding issues; population pressure and high growth rates; decreasing land productivity,

monoculture dependence, lack of value addition and insecurity, inadequate marketing facilities and land fragmentation into uneconomic units; unplanned urban areas, urban sprawl into agricultural productive areas, informal settlements with inadequate services; and lastly, the poor state and scarcity of infrastructural facilities, frequent outages and poor governance issues. Opportunities presented through the county’s strategic location, and the A1 and A104 international transit road corridor that traverses through the County identifies numerous benefits to spur the county development. This together with the county; rich cultural heritage, abundance of human resource, arable agriculture, green energy production potential are proposed to spur the economic potential of the County.

Plan Formulation

A synthesis of the County POC; potentials, opportunities and constraints aligned to various parameters such as geographical location, land; capability, availability and suitability analysis, resources both natural and human, transportation and infrastructure gap analysis, human settlements analysis, and environmental sensitivity analysis among others, informs the preparation of the County Structure Plan.

A structure plan is a framework that sets out strategic planning policies on space, and it comprise of three elements: a physical zoning map, land management policies and land use standards; all aimed at achieving integration, functionality and livability. Overall, the spirit of the structure plan is environmental conservation, driving growth into compacted urban areas and along key transportation corridors and prime agricultural land protection. Detailed standards for each proposed land use category have also been detailed within this report. To operationalize

this structure plan, six thematic strategies have been detailed: an environmental strategy, integrated transportation strategy, economic development strategy, spatial development strategy, transportation strategy and a capital investment framework.

The Environmental Strategy is bed rocked on a synthesis of opportunities, potentials and constraints presented by geological, water, forest, energy, land and wildlife and scenic resources. Soil Conservation strategies include restricting development on slopes above 40 degrees and terracing on less-steep slopes. The introduction of a soil health card scheme is proposed as a flagship project with the potential to turn around agricultural incomes by providing scheme farmers with information about soils and the kind of crops to be grown in various regions. This will be supported by the establishment of mobile soil testing facilities as well as a county soil lab. Sand harvesting has also been restricted to river beds only while quarrying sites must be buffered from human settlements.

Water Resources Strategies include protection of riparian reserves, wetlands and underground water sources by non-approval of development on them, and behavioral change in surrounding areas (such as better and cleaner farming practices, community maintenance and appropriate tree planting) and encasing of the water springs most at risk. Small multi-purpose dams have been proposed as flagship projects for water supply, irrigation, navigation, flood control, sediment control, and water quality and energy generation.

Forest Protection Strategies include participatory forest conservation projects, restrictions on development within forests or in their immediate vicinity, agro-forestry to increase forest stocks and encouraging alternative energy sources such as briquettes to reduce demand for firewood and charcoal.

Small-scale tapping of solar and wind energy as well as biogas generation on farms should be encouraged. Building of dams and construction of

hydropower stations coupled with feasibility studies for other possible sites for hydropower generation are proposals within the Green Energy Development Strategy.

Within the Wildlife and Scenic Resources Strategy, establishment of a gate to Mount Elgon National Park and Chepkitale National Reserve to collect tourist fees as well as promotion of eco-tourism would develop wildlife resources. Restrictions on development around scenic sites as well as preparation of detailed tourism plans for the identified scenic sites and possible tourism circuits form part of the scenic resources development strategy.

The Economic Strategy is bed rocked on; livestock, trade and industry sectors. Crop Agriculture Strategy; revolve around value-chain maximization through increased access to farm inputs, application of the soil health card scheme, use of technology in agriculture, promotion of irrigation in agriculture, improving efficiency and effectiveness of extension service provision, improving access to markets, agricultural credit and promotion of climate smart agriculture.

Livestock Farming Strategy includes value-chain maximization (through improved livestock breeds, access to veterinary services, efficiency of extension services, promote marketing infrastructure and markets, disease free zones, promote of fishing as an alternative source of income, promotion of commercial bee keeping and rabbit keeping as viable alternatives) and promotion of farmer education and capacity. Within agriculture a flagship on farmer capacity building and cooperative promotion and coordination is proposed because of its possible high multiplier effect.

The Industrialization Strategy involves promotion of agro-industrial development through creation of industrial zones, reviving of collapsed industries, formation and investment in regional markets and promotion and development of cottage industry. Flagships within this strategy include the development of an agro-industrial

park with a Special Economic Zone, and the transformation of the defunct PanPaper Mills into a sugar-cane paper processing plant. The Trade Strategy involves improvement of business environment to encourage agro-industries (through preparation and implementation of a pro-MSE and industry policy in Bungoma, harmonization of single business license fees, construction and reviving stalled of market stalls), improving access to business financing, improved access to infrastructure for businesses and skills improvement for better managed MSEs.

An annual cultural festival scheduled around the Bukusu circumcision ceremony is proposed as a tourism development flagship. The overall economic sector flagship project should be the Annual Investment Summit that showcase the investment opportunities in the County, and highlight the county's program of economic incentives and showcase the comparative competitive advantages to potential investors.

The Integrated Transportation Strategy covers the development of road, rail and air transportation. Road Transportation Strategy involves the completion of missing links (particularly connecting and interlinking the Mount Elgon region), construction of bypasses to decongest Bungoma and Kanduyi, construction and repair of various bridges, upgrading the state of all county feeder roads, improvement of urban roads (through proper drainage systems, walkways, reclaiming of encroached reserves and creation of NMT infrastructure and truck bays).

Road use behavioural change and strict rules enforcement would also greatly reduce accidents and traffic issues. For both rail and air transport, the existing infrastructure should be upgraded and maintained. The flagship project for this sector (regional

connectivity project) is proposed as inter and intra linkage of the missing link connecting Kimaeti-Malakisi-Lwakhakha-Cheptais- Kapsokwony- Kamukuywa to link Lwakhakha border to Malaba, the tarmacking of Chwele-Sirisia and Lwakhakha road and the establishment of truck bays in strategic centres like Bukembe, Kimaeti and Kanduyi.

The Appropriate Infrastructural Services Provision Strategy includes sub-strategies for water infrastructure, electricity supply, education, health, and recreation infrastructure. Water Supply Strategies include encouraging water harvesting, increased exploration and utilization of underground water, multi-purpose dam construction, and establishment of water testing laboratory and construction of water points every 500m in informal settlements.

Electricity Strategies include the completion of the rural electrification (particularly in all schools, hospitals and community facilities), stabilization of power supply countywide, street-lighting of all centers and investing in green energy (solar, wind, biogas) as alternatives.

The Education Development Strategy aims at increasing ECD and tertiary institutions where gaps exist, increasing of teaching personnel and learning equipment/ tools, water and electricity supply, and the incorporation of relevant courses (animal health, farm management, soil analysis, agricultural technology & entrepreneurship) and ICT in selected tertiary institutions within the county.

The Health Development Strategy proposes to increase health centers where gaps exist, equip centers with drugs, personnel, water and electricity supply, and allocation of adequate land for mortuaries and public cemeteries.

The Recreation Facilities Development

Strategy proposes the construction and rehabilitation of stadiums, social halls/ talent centers with public libraries and the allocation of space for establishment of public parks

The Spatial Development Strategy has sub-strategies for urbanization, rural development and housing. The Urbanization Strategy proposes for planning for existing urban areas through preparation of physical development plans for all major towns and rapidly emerging ‘special’ towns/ corridors, compacting urban areas and delineating their urban fringes, beautification and protection of public land. Detailed planning for development of other existing towns into specialized hubs (growth hubs) based on urbanization drivers and along various strategic growth corridors.

The Rural Development Strategy proposes the servicing of rural areas (where possible through the provision of mobile social services (mobile clinics, libraries, mobile ‘huduma centers’) to cater for the dispersed settlements) and conservation of prime farmlands. Within the Housing Strategy, Public Private Partnerships should be encouraged for proper provision of adequate urban housing while research should be encouraged into appropriate low-cost local housing technologies.

Governance and Conflict Management Strategy aims at developing a transparency and accountability system, undertaking performance appraisal for all public servants, establishment of community participation and feedback platforms while fostering strong political will. Conflict mitigation will be through encouragement of alternative dispute resolution methods, increased security facilities in hotspot areas, involvement of youth and women in peace-building as well as monitoring all hate speech activities.

The Capital Investment Programme proposes that the County Government fund all county road improvements, the soil health card scheme,

and the annual investment summit. Partnership between the national and county government should fund development of agro-industrial SEZs, multi-pupose dams and national trunk road improvements. Public Private Partnerships should be used to fund the transformation of PanPaper Mills, green energy generation projects, cultural preservation centers and relevant geological surveys. Donors can assist in any of the projects the county is tasked with funding. The community should resource mobilize for the SACCO formation flagship project.

Plan Implementation, Monitoring and Evaluation relies on a sound institutional set up. Given the multi-disciplinary nature of the County Spatial plan, this plan proposes that an implementation and coordination committee or unit be constituted to facilitate implementation incorporating key executive officers from all the thematic areas. Each strategic project lead is assigned resources and manpower to achieve the projects. This head is solely responsible for management of the projects and reports to the coordinating unit. There must be effective communication of the plan implementation process to all stakeholders through use of effective communication channels. Effective community participation can only be achieved through robust forums held in a commonly understood language, countering inherent biases to foster community support. Capacity building is critical for county staff responsible for direct plan implementation. A framework for periodical monitoring and evaluation of plan implementation is detailed and proposed, highlighting the various thematic indicators and sources of verification.

The implementation of this County Spatial Development Plan will transform Bungoma into a regionally competitive hub, through sustainable resource management and exploitation, in line with Kenya’s Vision 2030.

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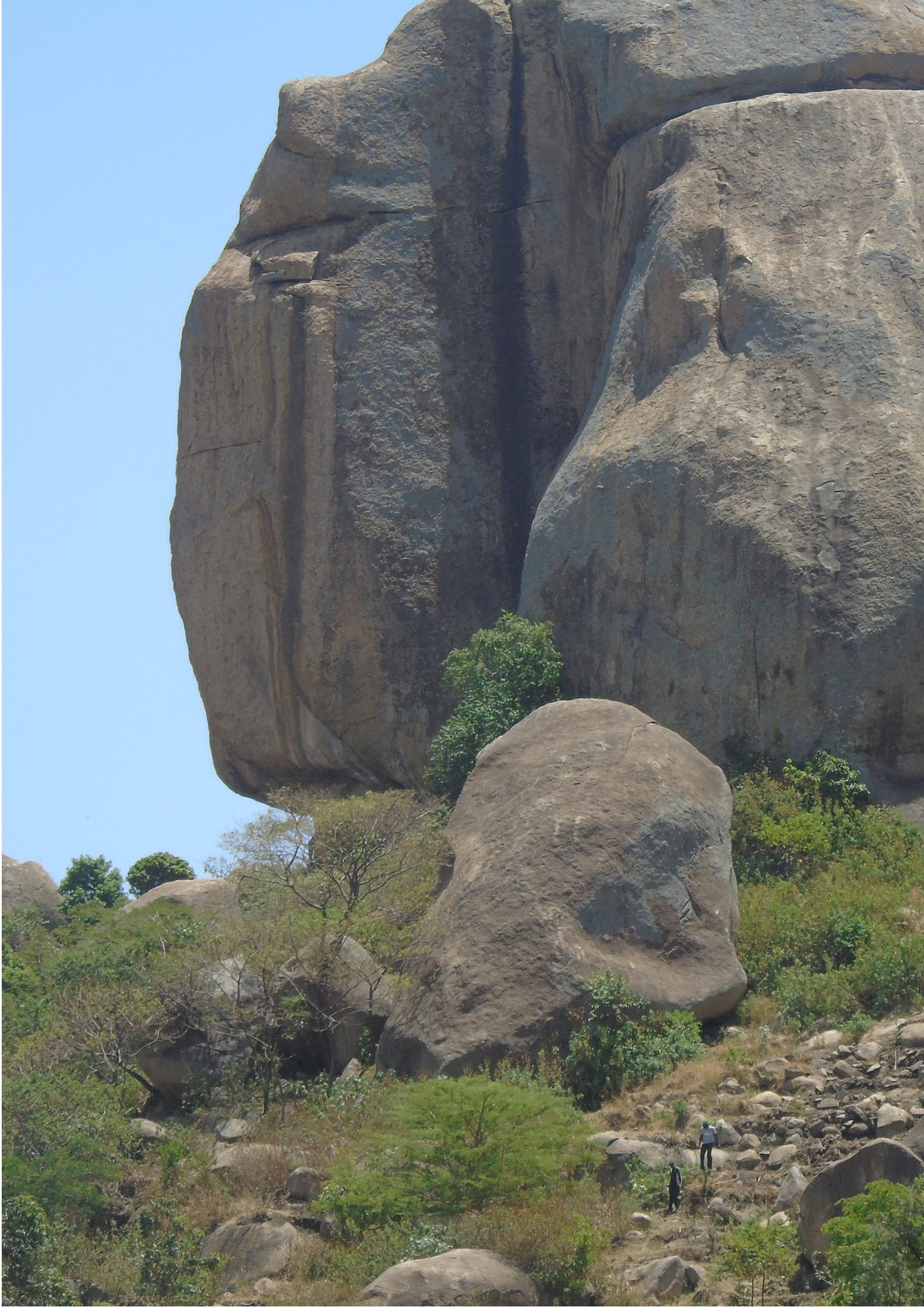
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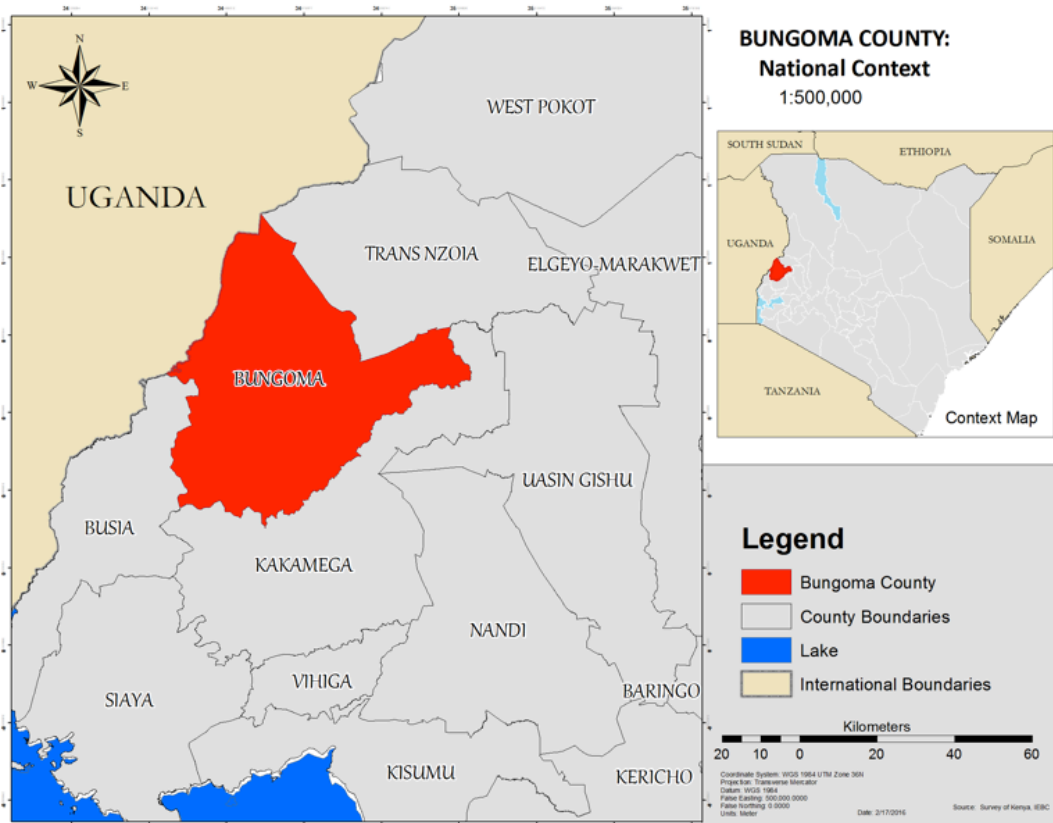


CHAPTER 1.0: BACKGROUND

1.1 GEOGRAPHIC SCOPE

The county spatial plan covers the entire county measuring approximately 3032.4km² comprising (9) sub counties namely; Kanduyi, Kabuchai, Sirisia, Kimilili, Webuye East, Webuye West, Tongaren, Bumula and Mt. Elgon.

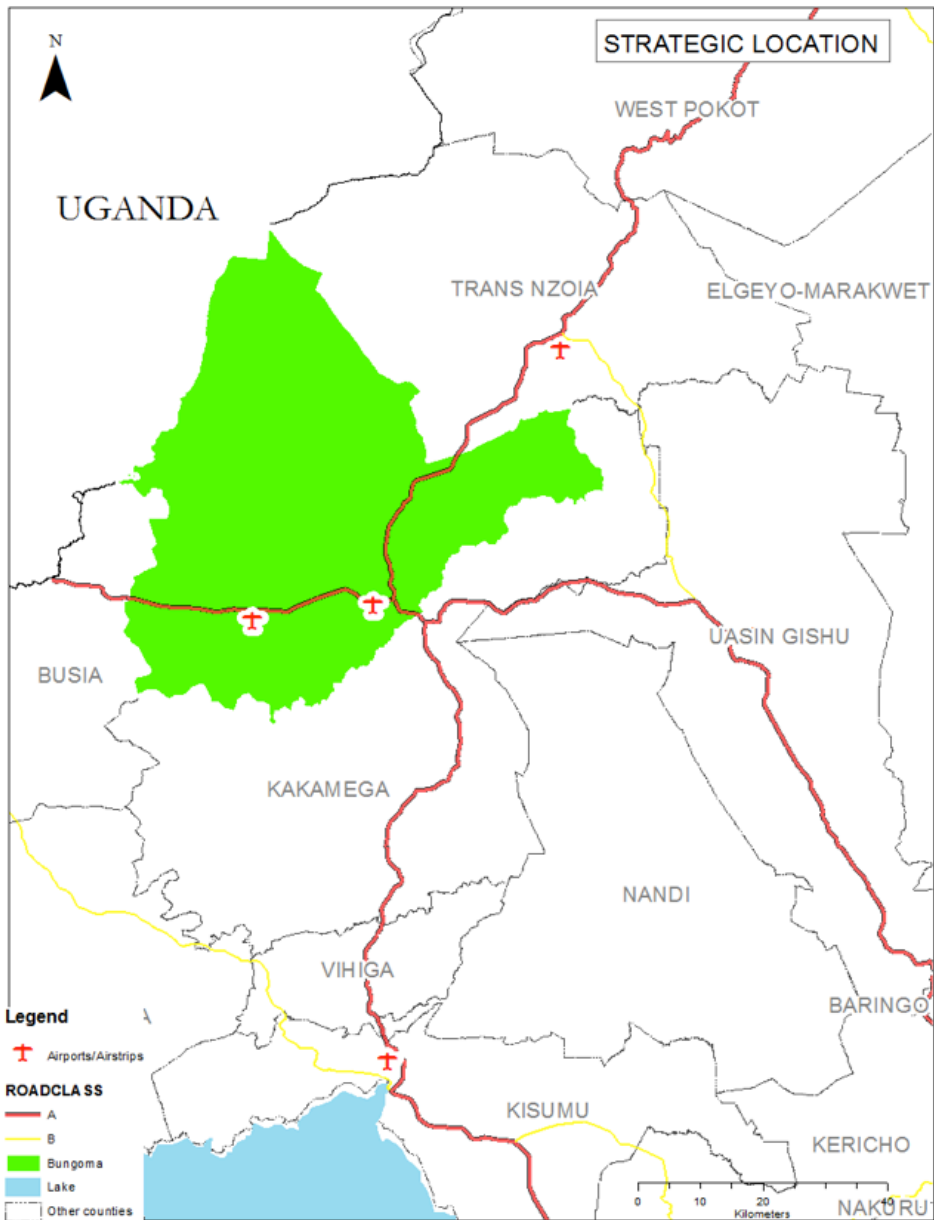
Map 1: Locational Context of the County



Source: Two Ems Associates, 2015

Bungoma County is strategically located on the border with Uganda along the northern corridor. It is the gateway to East Africa through Busia and Lwakhakha border points. The county also borders one of the most populous county in Kenya, Kakamega hence market opportunity via cross and inter county trade

Map 4: Strategic Location of the Count



Source: Two Ems Associates, 2015

This strategic location provides opportunities for the County to form an inter-county economic block as it is surrounded by counties with shared economic interests that can spur economic growth faster than when each county works on its own. This region has huge potential in agri-business, energy, tourism and agriculture. A common block can enable them to harness their potentials and achieve more while pooling resources to revive industries such as cotton milling, maize milling, tourism and agriculture.

1.2 HISTORICAL PLANNING CONTEXT

In the past, planning was largely based on the sectoral approaches, as evidenced in the past District Development Plans. The centralized preparation process, coupled with lack of sectoral projects integration and inadequate funding led to failure of a majority the projects. The 2010 Kenya constitution has provided a development paradigm shift, with the advent of devolution guidelines that requires the County Spatial Plan (CSDP) be anchored on the County Integrated Development Plan (CIDP) 2013-2017.

The CIDP provides data of county existing situation and an outline of the sectoral development proposals. A glaring weakness of the CIDP is lack of prioritization of the county development proposals aligned along the organization of the county government ministries. Community

priorities have however been captured in great detail, per ward, but only as an appendix to the CIDP. No quick-win projects have been clearly identified for prioritization for immediate impact to be felt on the ground. The CIDP also lacked a clear spatial dimension of the projects. Moreover available options for resource mobilization, were not clearly linked to each programmes for ease of implementation.

In light of the foregoing issues, the CSDP is not being prepared in a vacuum but build upon the aspirations of previous integrated visions and resultant plans.. A summary of the visions, programmes and projects proposed in the CIDP and the County Strategic Plan has been attached as Appendix G to this report.

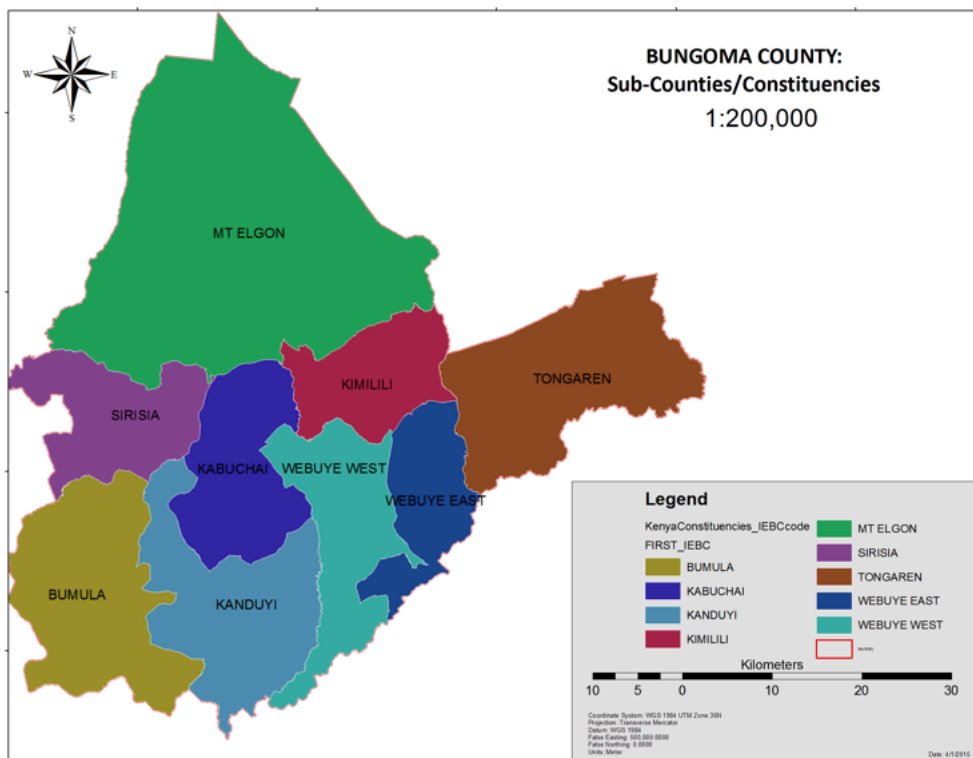
1.3 ADMINISTRATIVE BOUNDARIES

Table 1: Administrative context of the county.

Sub-county	Name of wards.
Kanduyi.	Township, Khalaba, Bukembe East, Musikoma, Tuuti Marakari, Sang'alo East, Sang'alo West, Bukembe West.
Bumula.	West Bukusu, Kimaeti, Khasoko, Kabula, Bumula, South Bukusu.
Mt. Elgon.	Kaptama, Elgon, Cheptais, Kapkateny, Chesikaki, Chepyuk.
Sirisia.	Lwandanyi, Namwela, Malakisi/South Kulisiru.
Kabuchai.	Mukuyuni, Chwele/Kabuchai, Luuya/Bwake/Khachonge, West Nalondo.
Webuye east and Webuye west.	Bokoli, Sitikho, Maraka, Misikhu, Matulo, Ndivisi, Michuu.
Tongaren.	Milima, Mbakalo, Naitiri-Kabuyefwe, Tongaren-Kiminini, Mitua-Soysambu.
Kimilili.	Kamukuywa, Kibingei, Maeni, Kimilili.

Source: KNBS, 2009

Map 2: Administrative context map



Source: Two Ems associates, 2015

1.4 POPULATION SIZE AND DISTRIBUTION

The population of Bungoma County is approximately 1,486,745 people which constitutes about 3.6% of the total population of Kenya (KNBS, 2009). The current population growth rate of the county is 3.1%.

This high population growth rate is due to in-migration and high birth rate.

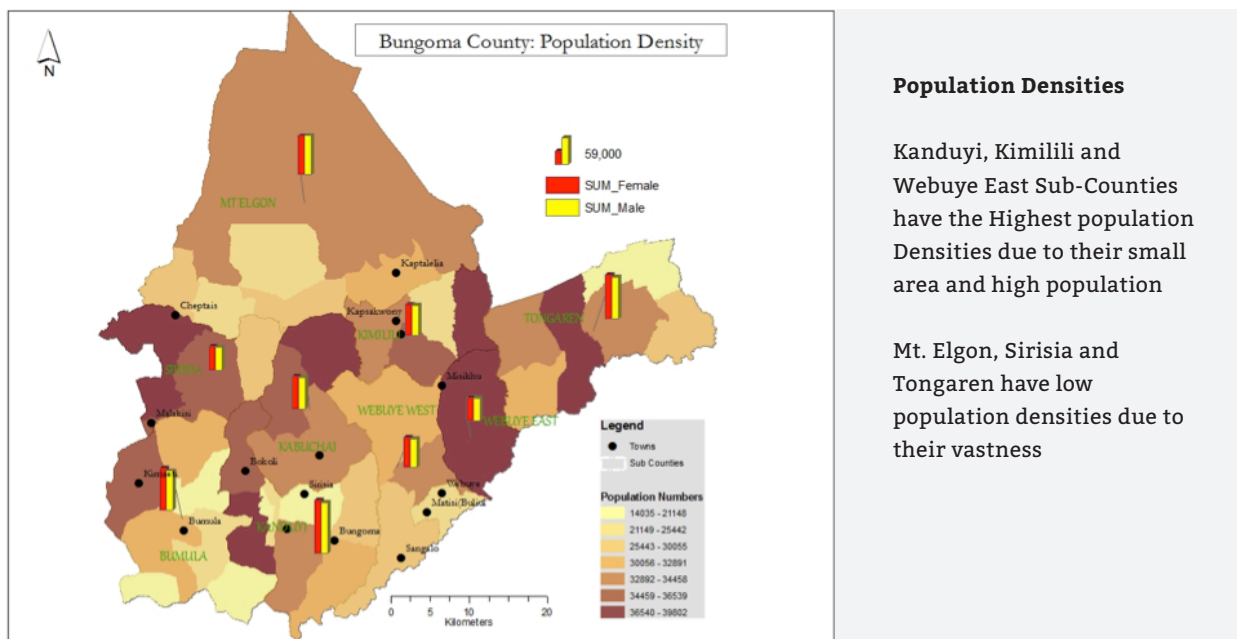
Table 2: Population distribution, Area and Density by Sub-county

Constituency/ Sub- County	Population (2009 census)	Population 2015 projection	Land Area in KM2	Population Density
Mt Elgon	172,377	207029	956.6	216.42
Sirisia	102,422	123012	213.2	576.99
Kabuchai	141,113	169481	232.3	729.58
Bumula.	178,897	214860	347.8	617.77
Kanduyi.	229,701	275876	318.5	866.17
Webuye East.	101,020	121327	161.8	749.86
Webuye west	129,233	155212	242.6	639.79
Kimilili.	132,822	159522	181.2	880.36
Tongaren.	187,478	225166	378.4	595.04

Source: KNBS, 2009

From the above table (11), Kanduyi, Tongaren and Mt. Elgon have the highest population while Webuye West and Sirisia have the least population. This implies that there is high birth rate and high immigration of people into the sub-counties with higher population size due to numerous socio-economic opportunities. The average population density for Bungoma County is therefore approximately 454.3 people per km³.

Map 5 : Population Densities of the Sub-Counties



Prepared by: Two Ems associates, 2015.

1.4.1 Population Projections and Trends

Population projections are important in planning decisions, as it forms the basis from which the public and private sectors can develop informed programs and decisions. This sub topic discusses the population growth pattern of Bungoma County divided into males and females.

The population projections to 2025, for the Bungoma sub- counties are as shown in Table 13. This is with the assumption the population growth rate remains at 3.1%.

Table 3: Population Projections per Sub-County

Constituency/ Sub- County	Population (2009 census)	Population 2015 projection	Population 2025 projection
Mt Elgon	172,377	207,029	280,942
Sirisia	102,422	123,012	166,929
Kabuchai	141,113	169,481	229,988
Bumula.	178,897	214,860	291,569

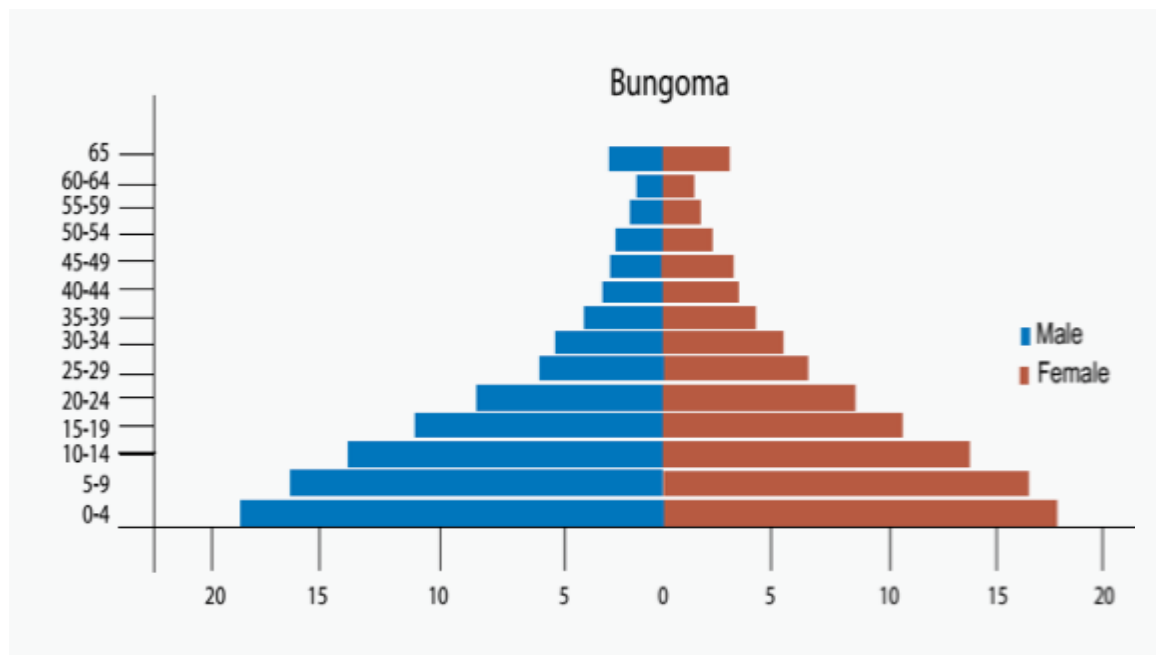
Kanduyi.	229,701	275,876	374,370
Webuye East.	101,020	121,327	122,263
Webuye west	129,233	155,212	156,408
Kimilili.	132,822	159,522	160,752
Tongaren.	187,478	225,166	226,902
Total	1,375,063	1,651,485	2,010,123

Source: KNBS, 2009

This increase in the population will put more pressure on the existing services and infrastructure within the county. Thus there should be plans to increase the services and infrastructure provisions to counteract the growth.

1.4.2 Population Structure

Graph 1: Population pyramid of Bungoma County



Source: Kenya National Bureau of Statistics, 2009

From the population pyramid depicted in graph 1, age cohorts 0-4 through to 30-34 have the highest population. These cohorts are the youthful part of the population and represents about 81% of the total population.

The high fertility rate in the county among women makes majority of the population to be within the age bracket of 0-14 years old being at a percentage of 49%; that of the age bracket of 15-64 years being 51.4% and

above 65 years old being at a 2.3% of the total population of the county (KNBS, 2009). This shows that 51.4% of the population is the energetic part of the population but the age-dependency ratio for the county is 1.066 that is the child and aged dependency ratio are 1.063 and 0.003 respectively (KNBS & SID, 2014).

The highest percentage household size is 4-6 members at 41% of the total households (KNBS, 2009)

1.4.3 Population Distribution and Impact of Plan on Development

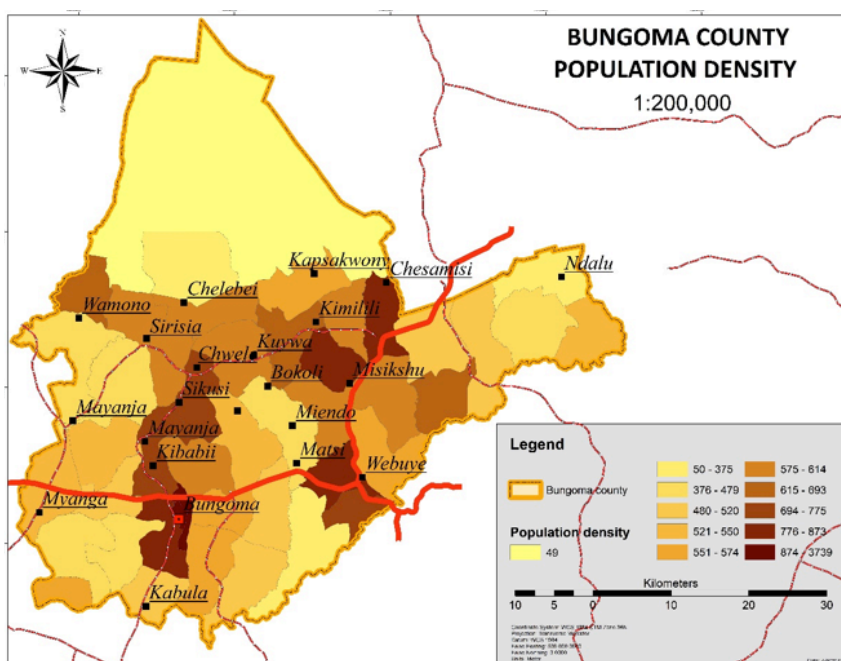
Assuming a constant population growth rate of 3.1%, the total urban population is 169,836. While the rural population is 1,481,649 this is about 79% of the total population size. The table below (12) shows the population distribution in each of the sub-counties.

Table 1: Population distribution by urban centers

Urban centre	2009 census			2015 (projections)			2025 (Projections)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Cheptais	1,852	2,047	3,899	2,225	2,458	4,683	3626	4006	7632
Tongaren	1,340	1,453	2,793	1,610	1,745	3,355	2,624	2844	5,468
Malakisi	1,690	1,822	3,512	2,030	2,189	4,219	3,308	3567	6,875
Kimilili	19,800	21,315	41,115	23,780	25,599	49,379	38,757	41721	80,478
Bungoma	27,669	28,198	55,867	33,231	33,867	67,098	54,160	55196	109,356
Webuye	11,489	11,829	23,318	13,798	14,207	28,005	22,488	45,643	68,131
Chwele	3,332	3,874	7,206	4,002	4,653	8,655	6,522	7,583	14,105
Kapsokwony	1,808	1,891	3,699	2,171	2,271	4,442	3,538	7,583	11,121
Total	68,980	72,429	141,409	82,847	86,989	169,836	135,023	168143	303166

Source: KNBS, 2009

Map 29: Bungoma Population Density



- The major towns in Bungoma County have the highest population densities with
- Bungoma town, Kimilili and Webuye having the highest population density.

Prepared by: Two Ems associates, 2015.

1.4.4 Human Development Index

Human Resource Development (HRD) is the overall framework for helping human beings develop their personal and organizational skills, knowledge and abilities. The essence of HRD is education which plays a significant role in balancing the socio-economic fabric of the county.

Literacy levels

To understand HRD of Bungoma County, it is important to understand the literacy levels, skill development and employment levels. Bungoma County has a school drop-out rate of 22% in the transition from primary to secondary education. This is influenced by lack of school fees to proceed to secondary education. The drop-out rate for the girls is 15% and 10% for the boys. This is due to early pregnancies by girls and early marriages experienced by both genders (Ministry of Education, 2014)

Employment levels

According to 2009 Population and Housing Census, the number employed formally and informally is 458,222 which represents 63.3% of labor force. Therefore the unemployment rate in the County is 36.7%. The County in labor intensive sector, usually creates a conducive environment to promote entrepreneurship and creative employment, so as to minimize social ills.

CHAPTER 2.0: INTRODUCTION

2.1 VISION: DESIRED FUTURE END STATE

“If you don’t know where you are going any road will get you there.”

The process of visioning is a crucial component of any plan formulation process that is created using three ingredients, the CSDP targets, current and desired states and proper definition of the problem. Bungoma County’s desired future is encompassed in the vision for this CSDP, coined by interaction between various stakeholders and the consultant, which is:

“To be a regionally competitive county driven by sustainable resource utilization and good governance, to achieve vibrant economic growth, equitable and transparent resource distribution and a high quality of life for its citizens.”

2.2 PRINCIPLES OF THE PLAN

The overall principles of study methodology espoused in the Constitution and relevant legislative frameworks are adhered to in preparation process.

- Effective public participation
- Multi-disciplinary and multi-sectoral consultation and engagement
- GIS based mapping approaches
- Evidence-based policies and strategies

2.3 OBJECTIVES

The objectives of this CSDP are to:

1. Depict the spatial dimension of the social and economic development programmes of the county as articulated in the integrated county development plan.
2. Present a clear statement of how the spatial plan is linked to the regional, national and other county plans.
3. Clarify the anticipated sustainable development outcomes of the spatial plan.
4. Give effect to the principle and objects contained in sections 102 and 103

- county Government Act.
5. Set out objectives that reflect the desired spatial form of the county.
6. Formulates strategies and policies indicating desired patterns of land use within the county, addressing the spatial construction or reconstruction of the county, providing strategic guidance in respect of the location and nature of development within the county, set out basic guidance for a land use management system in the county.
7. Planning, re-planning, or reconstructing the whole or part of the area comprised in the plan, and for controlling the order, nature and direction of development in such area.
8. Improving the land and providing for the proper physical development of such land, and securing suitable provision for transportation, public purposes, utilities and services, commercial, industrial, residential and recreational areas, including parks, and reserves and also the making of suitable provision for the use of land for building or other purposes.
9. Set out a capital investment framework for the count’s development programs.
10. Contain strategic assessments of the environmental impact of the spatial development framework.
11. Identify programs and projects for the development of land within the county.
12. Delineate the urban edges of the urban areas within the county.
13. Shall indicate the areas designated to conservation and recreation.

2.4 PURPOSE AND JUSTIFICATION

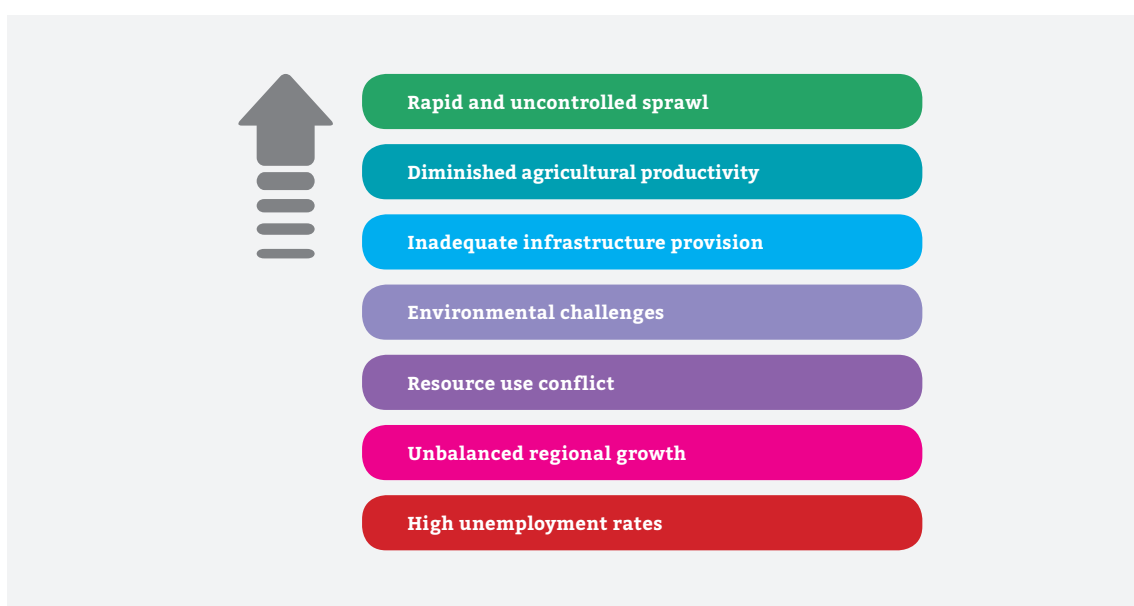
The main purpose of Bungoma CSDP is to enhance integration between sectors such as human settlement, economy (which comprises of agriculture, industry, tourism, service, knowledge etc.), integrated transportation (comprising of road, railway and air), infrastructure (consisting of water and sanitation, energy, ICT, education, recreation and health), and environment (comprising of the built and natural environment, consisting of rivers, wetlands, swamps, forests, hills, open spaces, parks etc.). The plan shall address wide range of issues, which can be

broadly categorized as spatial, economic, social and environmental.

Effective spatial planning also encourages development generated by urban functions and improved the relationship between urban areas and rural areas.

Anchoring on the National Spatial Plan

The County Spatial Plan anchors the National Spatial Plan (NSP) at the county level. This desires to create avenues for:



The NSP provides frameworks for functional human settlements, enhanced agricultural productivity, planning and managing natural resources and the environment, providing a framework for infrastructure provision, promoting industrial and commercial development and the enhancement of good governance. It informs the policy makers target the most deprived areas at the lowest

administrative areas. This is achieved through resource mapping, identification and mobilization.

The CSDP target the achievements of the NSP vision at the county level as well as a framework for the achievement of the national vision at a decentralized scale.

2.5 PROCESS LEADING TO THE PLAN

2.5.1 Data Collection Process

County planning requires assimilation of massive amounts of information (both quantitative and qualitative). Changing public values have also drawn attention to the effects of any development on the rest of the community. For these reasons a variety of data collection methods were adopted for comprehensive coverage, which is broadly classified into:

- Literature Review
- Reconnaissance Surveys
- GIS Mapping Component
- Field Surveys:
 - Administration of Household Questionnaires
 - Key Informant Interviews
- Stakeholder Participation

a) Literature Review:

Literature Review was the first data collection method used for purposes of familiarization of the scope and characteristics of the area.. This stage involved the perusal through relevant pieces of literature that provided:

- an understanding of both the theory and policy background of county spatial planning.
- collection and collation of all secondary data already compiled on the County.
- The secondary data collected formed the basis of shaping of data collection instruments and provided the foundation on which subsequent data compilation was done.

The sources of secondary data reviewed were as diverse as the scope of this study. They included Kenya Population Census (2009), County Development Plans, Policy/Legislative Documents, Independent Reports and Reviews of the study area, Local Physical Development Plans, and Internet sources.

b) Reconnaissance Surveys:

Reconnaissance surveys are crucial for providing an understanding of an area that desk research cannot effectively offer. A one-week reconnaissance survey was done throughout Bungoma County, including an initial contact meeting of the consultants and the County Physical Planning Department. This enabled better structuring of data collection, visit itineraries and collection instruments. It also enabled identification of county planning members who could be incorporated into the data collection team.

c) GIS Mapping Component:

The mapping component involved the use of current and up-to date satellite images and entire County aerial photographs, as well as topo-sheets to develop the base map of the County. Ground-truthing of the same was done through actual field surveys of the area utilizing Ground Positioning Systems (GPS). The updated base map is applied as the backdrop to guide the consequent field survey stages and served as the canvass for the planning process as well.

The GIS platform incorporates the following aspects:

- Natural resource inventories:
 - o Contextualization and linkages within the County
 - o Water Resources
 - o Agriculture Resources
 - o Livestock Resources
 - o Forestry Resources
 - o Minerals Resources
 - o Energy Resources
 - o Wildlife Resources
 - o Tourism Resources
 - o Environmental concerns
- Demographic characteristics maps (population density, poverty, conflict maps, etc.)
- Economic activities maps (such as agricultural zonation of crops and livestock maps)
- Human settlement map
- Land use structure map
- Infrastructural facilities inventories:
 - o Transportation map
 - o Water points map
 - o ICT, etc.

d) Field Surveys:

Administration of Household and Business Questionnaires:

Due to the high population of the county, sampling served as a crucial tool to ensure that data collection was possible. As a result, 383 household questionnaires were administered (using a sample frame of 1 questionnaire per every 4178 households) with a 99% response rate. The calculation of the number of questionnaires administered was based on a standard sample size calculation formula (Fisher et al, 1991) n designed for large populations. In this formula, any population of more than ten thousand (10000) people is considered infinite. Thus, the formula below was adopted.

$$n = \frac{(Z\alpha/2)^2 pq}{L^2}$$

Where n = sample size

Z α /2 = Z-the value at the chosen confidence interval (for 95% confidence interval = 1.96)

p = estimated population with attributes of interest which

If unknown we use

p = 0.5

q = 1-p and

L = precision (chosen to be 0.05)

For this study, sample size calculation was done using the following values:

$$\begin{aligned}
 p &= 0.5 \\
 q &= 0.5 \\
 Z_{\alpha/2} &= 1.96 \text{ for } 95\% \text{ CI} \\
 &= 0.05 \\
 \text{Therefore } n &= \frac{(1.96)^2 (0.5 \times 0.5)}{(0.05)^2} = 383 \text{ questionnaires}
 \end{aligned}$$

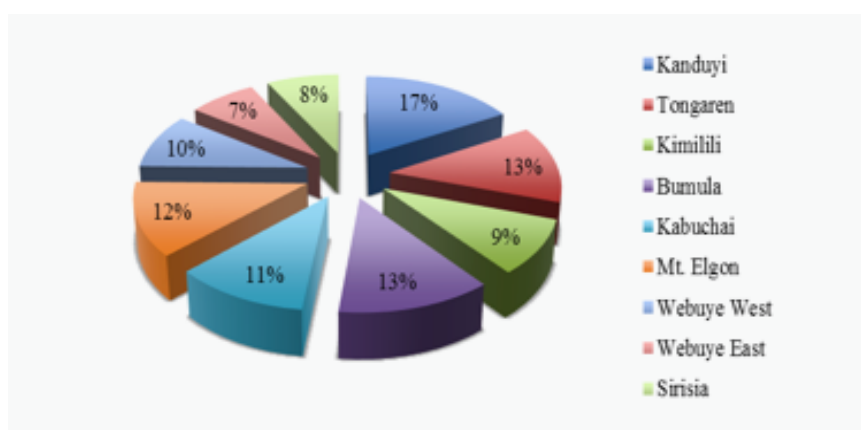
The advantage of using this formula was that it provided a scientifically acceptable sample size, which enabled the consultants to save on time, costs and speed due to the vast size of both the planning area, and its population.

The questionnaire administered to these households and businesses have been attached as Appendix A and B of this report. In each of the county's nine sub-counties, both the population and the number of households in each were considered (proportionate distribution), and the sample frame distributed as per the population as illustrated in the table and chart below:

Table 3: Distribution of Household Sample Frame

Sub-County:	Population:	Number of Questionnaires:
Mt Elgon	172 377	48
Sirisia	102422	29
Kabuchai	141113	39
Bumula	178897	50
Kanduyi	229701	64
Webuye East	101020	28
Webuye West	129233	36
Kimilili	132822	37
Tongaren	187478	52
TOTAL	1,375,063	383

Household Questionnaire Distribution Per Sub-County

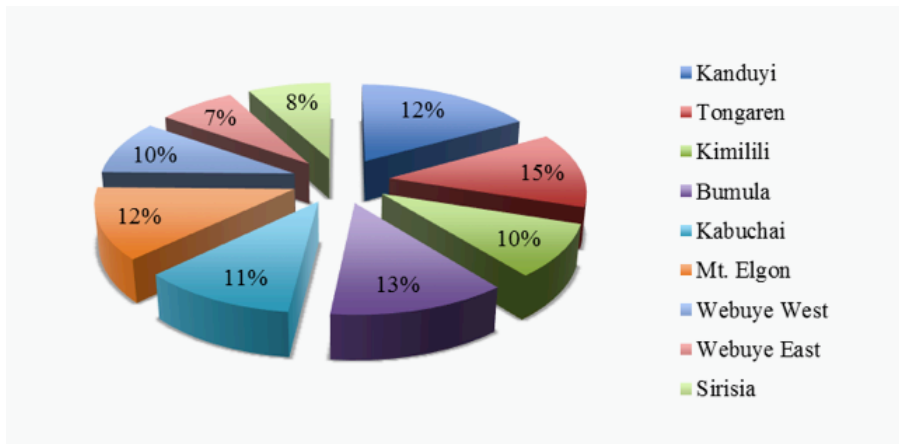


Random sampling was applied to distribute the questionnaires in the various settlements in each sub-county ensuring a comprehensive survey of the area. To eliminate any bias, purposive emphasis was given to the rural hinterlands of the identified urban centres.

Business questionnaire sampling

Random sampling was used to distribute the questionnaires in the various centers in each sub-county ensuring a comprehensive survey of the area. The choice of business premise to interview was also selected at random.

Business Questionnaire Distribution Per Sub-County



Source: Two Ems Associates, 2015

Key Informant Interviews:

The final phase of data collection was the interviewing of key informants, done using purposive sampling methods.

Bungoma County has nine devolved ministries, and key informants from these ministries as listed below were interviewed:

1. Ministry of Public Administration
2. Ministry of Agriculture, Livestock, Fisheries, Irrigation And Co-Operative Development
3. Ministry of Education, Youth And Sports
4. Ministry of Gender And Culture
5. Ministry of Finance And Economic Planning
6. Ministry of Trade, Industrialization, Lands, Physical Planning And Energy
7. Ministry of Environment, Water And Natural Resources
8. Ministry of Roads And Public Works
9. Ministry of Housing And Sanitation

Among the National Government stakeholders visited were the County security personnel, representatives from Kenya Power and Lighting Company (KPLC), Nzoia Water and Sewerage Company (NZOWASCO), Kenya Forest Service (KFS), Kenya Wildlife Service (KWS), Micro and Small Enterprise Authority (MSEA), Other important Non-governmental key stakeholders included the management of major industries (British American Tobacco, and Kitinda Dairy Factory Ltd). The data collection instruments used to guide interviews with these key informants have been attached as Appendix B of this report. The complete list of the names and contacts of the officers who participated in data provision in the field has also been attached as Appendix E of this report.

Stakeholder consultations

Stakeholder participation and involvement of various categories of actors in the entire planning process has been recognized. In this regard, stakeholder identification and mapping was done through both literature review and interactions with the client and key informants on the ground during field survey. This is particularly important, as it provides the residents and concerned parties to make decisions on matters that affect them, enhance ownership of the plan and gather support for plan implementation therefore ensure sustainability.

The mapping and identification of stakeholders was done through; Identification of who has statutory/ legal mandate of planning of the county

- Expertise in various thematic fields; they could be state or non-state.
- Have representation from the entire county especially from each administrative unit.
- People with resources to support plan implementation
- People with interest/ affected by the plan e.g. Community representatives
- Opinion leaders: elected leaders and local elders
- Policy makers
- Sampled residents

The key stakeholders have therefore been identified as:

- National government representatives
- County government executive members
- County politicians (both present and past)
- Members of the academic community from the county
- Representatives from Non-Governmental Organizations (NGO's)
- Local religious leaders
- Local community representatives

Stakeholder participation was an on-going process and in this regard, there a total of seven public forums held in the county to give and receive feedback. The final forum is a County wide forum that is to be held towards the end of the process.

Stakeholder Concerns and Feedback

LAND AND AGRICULTURE		
PRIORITY AREA	CHALLENGES	PROPOSED INTERVENTION
Land	<ul style="list-style-type: none"> • Boundary conflicts • Land succession issues • Outstanding issues in legal corridors' boundaries • Inappropriate land fragmentation • Encroachment on river banks • The girl child is left out during succession 	<ul style="list-style-type: none"> • Subsidization of land title deeds costs • Limit the size of land to be sold • Regulation of survey fee • Community sensitization on the importance of protecting riparian reserves • Implementation of town plans
Crop Agriculture	<ul style="list-style-type: none"> • Lack of soil analysis • Poor quality of seeds • Lack of technical know how on agricultural matters • Isolated farming • High cost of inputs 	<ul style="list-style-type: none"> • Capacity building interventions for farmers • Provision of soil analysis • Distribution of quality seeds • Input subsidies

Livestock	<ul style="list-style-type: none"> • Lack of livestock related industries • Limited breed varieties 	<ul style="list-style-type: none"> • Establishment of livestock related industries • Capacity building and training of livestock farmers • Regulation of prices of livestock produce
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PHYSICAL INFRASTRUCTURE

PRIORITY AREA	CHALLENGE	INTERVENTION
Roads	<ul style="list-style-type: none"> • Poor bridging • Narrow roads due to encroachment • Feeder roads in poor condition • Unmarked roads 	<ul style="list-style-type: none"> • Build culverts • Murraming of all rural feeder roads • Full tarmacking on some roads • Proper drainage on all roads • Expansion of encroached roads
Water	<ul style="list-style-type: none"> • Very expensive • Long distances covered to water sources • No water supply during dry seasons • Contaminated water 	<ul style="list-style-type: none"> • Ensure affordable water pricing • Drilling of wells and boreholes • Ensure piped water connection in every institution of learning and markets
Electricity	<ul style="list-style-type: none"> • Very few transformers in both sub-counties • No power connection for majority of the population • Frequent blackouts • Lack of street lights in some markets 	<ul style="list-style-type: none"> • KPLC intervention in ensuring blackouts rarely occur • Subsidization of connection fees • Tapping of HEP in Nabuyole & Sitikho falls • Streetlights in every market • Continuity of Rural Electrification Programme

SOCIAL INFRASTRUCTURE

PRIORITY AREA	CHALLENGE	PROPOSED INTERVENTION
Education, Health and social amenities	<ul style="list-style-type: none"> • Inadequate number of teachers • Most schools lack title deeds • Lack of sufficient ECD schools • Untrained teachers teaching in primary schools • Lack of electricity in most schools • Very low enrolment of local students into local universities(MMUST and KMTC) • Inadequate number of youth polytechnics • Inadequate number of social amenities • Few doctors within county • Shortage of medicine in health facilities 	<ul style="list-style-type: none"> • Employment of more teachers from local population • County govt to establish more ECD schools • Ensure that all primary schools have title deeds • Ensure that all schools are connected to electricity and have tapped water • Privision of adequate learning facilities • Establishment of more tertiary institutions • Establishment of social halls and recreation parks • Employment of more medical personnel • Sufficient supply of drugs in public hospitals

LEADERSHIP AND GOVERNANCE		
PRIORITY AREA	CHALLENGES	PROPOSED INTERVENTION
Ward administration Governor's office County resources	<ul style="list-style-type: none"> Political interference in ward matters Tribalism during employment procedures Inequitable sharing of public resources i.e some sub-counties favoured at the expense of others 	<ul style="list-style-type: none"> Involve the community in all decision making matters Separate politics from administration Facilitation of civic education on governance and integrity and societal values Tough regulations to promote balance
Urban settlements (Webuye town, Lugulu, Misikhu)	<ul style="list-style-type: none"> Insecurity Frequent blackouts High poverty rates Poor infrastructure 	<ul style="list-style-type: none"> Youth employment Ensure urban areas are fully equipped with infrastructure (Drainage, transport, dump sites, public toilets) I.G.As
Rural settlements (Sitikho, Ndivisi, Misimo, Miendo, Nabuyole)	<ul style="list-style-type: none"> Impassable feeder roads Inadequate water supply Insecurity Lack of electricity Few health centers 	<ul style="list-style-type: none"> Rehabilitation of feeder roads Put up security lights Equip and empower the available health centers
TRADE, COMMERCE & INDUSTRY		
PRIORITY AREA	CHALLENGES	PROPOSED INTERVENTION
Trade & Commerce (Security, Infrastructure, Markets, Capital, Trade licences, Business training)	<ul style="list-style-type: none"> Insecurity in market centers Frequent blackouts affecting businesses Lack of open air markets Poorly planned markets Poor drainage system in markets Inadequate loan facilities Haphazard increase of license rates Lack of training sessions for SME traders 	<ul style="list-style-type: none"> Increase patrols within market centers Increase of transformers capacity by KPLC Redesign the drainage system in major markets Construction of public toilets in all markets Designate waste disposal space in all markets Assistance in access of loans for MSE traders Harmonization of single business license fees
Industry	<ul style="list-style-type: none"> Collapsed industries Lack of value addition industries Inadequate cottage industries for horticultural produce 	<ul style="list-style-type: none"> Reviving of collapsed factories for economic empowerment Harness H.E.P from Nzoia river to reduce electricity costs for local industries Invitation of private investors by County govt Establishment value addition industries

Source: Bungoma stakeholder forums, 2015

2.5.2 Data Analysis and Presentation Process:

Data analysis and presentation has been done through various methods as outlined below:

- The use of report writing.
- The use of GIS mapping- various thematic maps were overlaid for analysis of interlocking spatial factors and this data presented in map form.
- The use of Statistical Package for Social Sciences (SPSS) for analysis of household and business questionnaire data collected.

2.5.3 Challenges Faced in Conducting the Study:

Various challenges were faced in conducting this study and they included:

- Harsh terrain in some areas
- Difficult roads in some areas such as Mount Elgon
- Language barrier

These challenges however were addressed through the use of locals during the administration of questionnaires.



LINKAGE TO HIGHER LEVEL PLANS

- Vision 2030
- National Spatial Policy
- Regional Development Plans

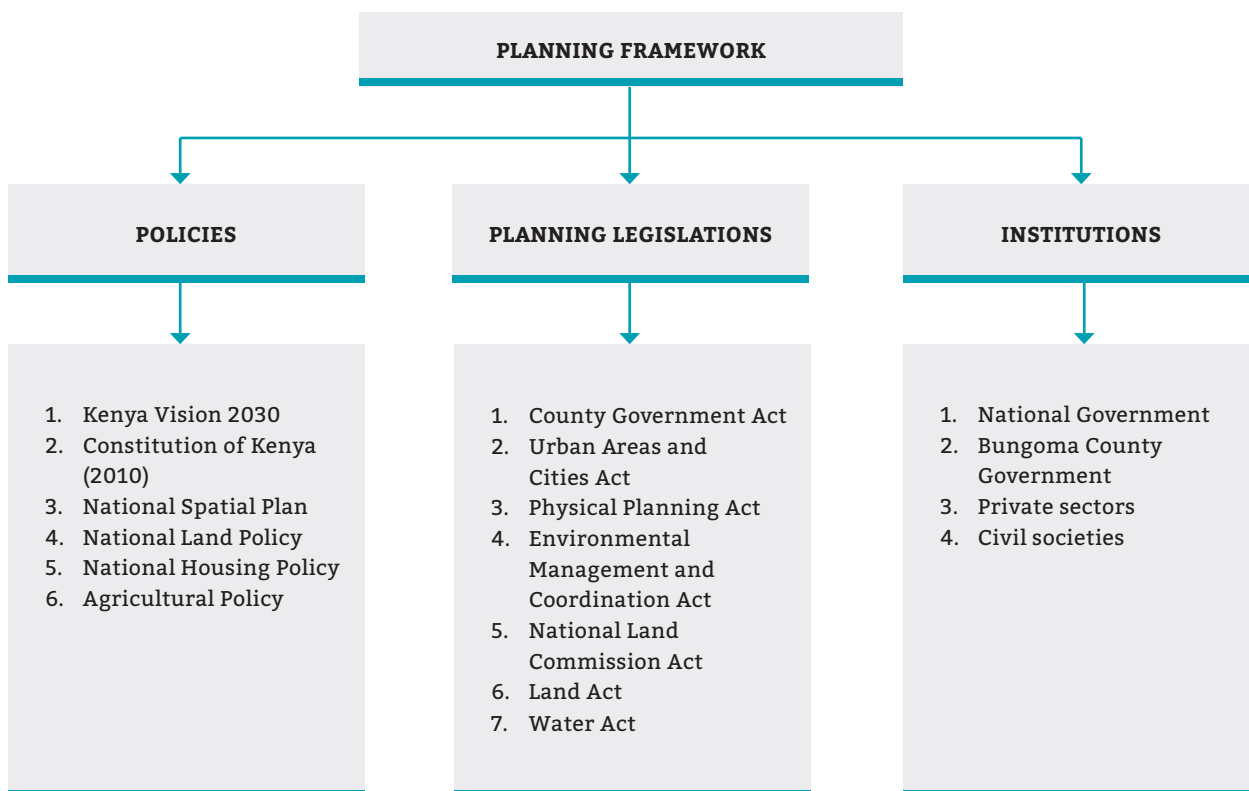


LINKAGE TO LOWER LEVEL PLANS

- Local Urban Development Plans
- Sector Plans
- Zoning Plans

The planning framework implemented is as follows:

Fig 1: Policy, Legal and Institutional framework



Prepared by: Two Ems Associates, 2015

1. Kenya Vision 2030

This is the blue print for Kenya’s long term national development. It guide Counties become a newly industrialized middle income country providing high quality life for all citizens by the year 2030. It is anchored on three main pillars: Economic, Social and Political.

The Economic pillar aims at providing prosperity for all Kenyans through attaining a sustainable economic growth rate of 10% per annum over the next 25 years.

The social pillar aspires to build a just and cohesive society enjoying equitable social development in a clean and secure environment based on the transformation of the eight selected social sector namely; Water and sanitation, housing and urbanization, environment, education and training, gender, youth, sports and culture.

The political pillar seeks to build a democratic, issue based, people-centered, result-oriented and

accountable political system. The national policy advocates for enhanced sustainable development to be integrated in every development activity to ensure socio-economic development.

Role of Bungoma CSDP in achieving Vision 2030 through the second medium term plan

The County of Bungoma has the following roles to play in achieving the Country’s vision 2030. This CSDP anticipates that this role will be achieved through:

- Improving agricultural productivity through:
 - o irrigation,
 - o mechanized agriculture,
 - o revival of farmer cooperatives,
 - o value addition in production chain
 - o Subsidized farm inputs
- Private sector support especially for SMEs
- Promotion of industrial zones to foster growth

2. National Spatial Plan

This is a draft document prepared in relation to the country's policy framework, Kenya Vision 2030 and the National land policy. It reviews the numerous national social, economic and environmental challenges faced by the country and positive outcomes to be achieved from the implementation of the plan. It aims at establishing a long-term, sustainable framework for social, environmental and economic development in the country. The role of the national spatial plan is to enhance sectoral integration in areas such as housing, transport, energy, industry, and agriculture. It is also intended to improve local urban-rural development systems.

Role of Bungoma CSDP in realizing vision of NSP

This CSDP will achieve the vision of the NSP through:

1. Provide a framework for functional human settlements,
2. Enhanced agricultural productivity,
3. Planning and managing natural resources and the environment,
4. Providing a framework for infrastructure provision,
5. Promoting industrial and commercial development
6. And the enhancement of good governance.

3. National Land Policy, 2009

It was adopted in the year 2009. The National Land Policy (NLP) has a vision to guide the country towards a sustainable and equitable use of land. The land policy calls for immediate actions to addressing environmental problems that affect land such as degradation, soil erosion and pollution. It has further informed the provisions made in various legislative instruments such as:

- A new Constitution (2010), which includes a chapter on Land and Environment, anchoring many of the NLP's key provisions in law
- The National Land Commission Act (2012)
- The Land Act (2012)
- The Land Registration Act (2012)

In enacting this policy, the National Land Commission was created that laid out a five-year National Strategic Plan to guide implementation of the NLP. Its five strategic focus areas are:

- Devolution of land management (to run land administrative and management functions at the county level)
- Land Registration
- Natural Resource Management
- National Land Information Management System
- Resolution of Land-related dispute

Additionally, it aims at providing a framework for undertaking land use planning and development control in all administrative levels i.e. national, county and town level.

According to it, a county land use plan shall:

- Provide a basis upon which other county development plans shall be prepared
- Provide a framework for planning and management of county land resources
- Provide comprehensive guidelines for determining county land use decisions and future development

The provisions herein guide the preparation of the CSDP.

4. Industrialization Strategy 2013-2017

Industrialization has been embraced by many developing countries as a means of achieving structural transformation of their economies. In Kenya, the goal of industrialization has long been held as a strategy for economic development. Various plans have been prepared to this effect. Presently, the 2013-2017 is the existing short term plan recommendation for the project.

The policy focuses on value addition and has prioritized seven (7) sectors out of the twenty two (22) identified based on their potential for growth, employment and wealth creation and availability of national resource base. The seven (7) priority sectors are both labor intensive and medium-high technology sectors and include: agro processing, textile and clothing, leather and leather products, iron and steel, machine tools and spares, agro-machinery and pharmaceuticals.

As a strategy, the implementation of this policy

will leverage on subcontracting, business and technology incubation and protection of intellectual property rights. In addition it will facilitate forward and backward linkages with other economic sectors and provides a framework for addressing the enablers, funding mechanism and institutional arrangements to revitalize the industrial sector.

The County Spatial plan will anticipate to achieve some objectives of the plan within the stipulated plan period. This will include: focusing on the key industries of agro-processing and agro-machinery as entry points. It will further anticipate to use private sector as the key driver of this strategy.

5. County Integrated Development Plan, 2013-2017

The Bungoma County Integrated Development Plan will act as a guideline to the County spatial plan as it lays a framework for spatial development. The overall vision for the County is “To be a leading County that effectively manages and utilizes all her resources to generate wealth and sustainable development for prosperity”. The County Integrated Development Plan has outlined various projects and programmes with their location for implementation indicated in maps attached as appendices to this report.

2.7 CONSTITUTION AND LEGAL FRAMEWORK

2.7.1 The Constitution

The constitution is the supreme law of the land. It sets the process and defines principles guiding planning. According to Article 60, (1) of the constitution of Kenya dictates the guiding principles on how Land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable. However, article 66 states that the State may regulate the use of any land, or any interest in or right over any land, in the interest of defense, public safety, public order, public morality, public health, or land use planning. The County Governments have been given the mandate to manage public lands in the counties.

It is as a result of the devolved government in Article 6 that counties have been created. The aim of having counties is to give powers of self-governance to the people and to enhance the participation of people in decision making. Schedule four of the constitution elaborates the defined functions of the National Government and County Governments including planning functions.

2.7.2 Legal Framework

The legal framework ensures enforcement and regulation of plans.

1. County Government Act, 2012

According to the Act, Bungoma County Government has a mandate to plan for the County and no public funds shall be appropriated without a Planning framework developed by the County executive committee and approved by the County assembly. The Act stipulates that the County Planning framework shall integrate Economic, Physical, Social, Environmental and Spatial Planning. In addition to an integrated County development Plan, each County is expected to have the following: County Sectoral Plan, County Spatial Plan and Cities and Urban Areas Plans.

According to Section 110 of the Act, it states that the County Spatial Plan shall be a ten year GIS based database system providing:

- A spatial depiction of the social and economic development programme of the County as articulated in the integrated county development plan
- Clear statements of how the spatial plan is linked to the regional, national and other county plans
- Clear clarifications on the anticipated sustainable development outcomes of the spatial plan

2. Physical Planning Act, Cap 286

The Act provides for the preparation of land development plans and implementation of all local and regional physical development plans by councils now counties in liaison with the Director

of Planning. It ensures that planning is carried in such a way to ensure orderly development through land use planning and development control procedures. The County Spatial plan should therefore be developed under this mandate.

3. Urban areas and Cities Act

The Act provides for the classification, governance and management of cities and urban areas. This is effected through establishment of City Boards with functions to control land use developments as well as provision of services. The Act provides guidance in the formation of and provision of services to urban centres and towns.

4. Environmental Management and Coordination Act

This act provides for the establishment of an appropriate legal and institutional framework and procedures for management of the environment. It recognizes that every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment. It is therefore necessary to have provisions while undertaking the spatial development framework on land to ensure protection and conservation of the environment.

5. Water Act

This statute provides for the sustainable management, conservation, use, control of water resources, including the regulation and management of water supply and sewerage services. The County is endowed with several rivers, springs and wetlands. It is therefore necessary to propose efficient and effective mechanisms on utilization of the water resources for the county, and put in place protective measures to ensure water pollution is controlled.

6. Land Act

It is an act to give effect to Article 68 of the Constitution, to revise, consolidate and rationalize land laws in Kenya and to provide for the sustainable administration and management of land and land based resources, and for connected purposes.

The Act applies to public and community land. It provides that land can be converted from one category to another in accordance to law. The act provides for the following guiding values and principles to be applied in regard to land activities in Bungoma;

- Equitable access to land and security of land rights
- Sustainable and productive management of land resources
- Transparent and cost effective administration of land
- Conservation and protection of ecologically sensitive areas
- Elimination of gender discrimination in law
- Democracy, inclusiveness and participation of the people
- Alternative dispute resolution mechanisms in land dispute handling and management among other principles in regard to utilization of land.

1. National Land Commission Act

The Act gives effect to Article 67 of the constitution. It provides for the establishment of the National Land Commission. It states the functions, powers, composition and administration of the members of the commission. The general function of the commission is the management and administration of public, private and community land. Under the Act, the commission has a mandate to:

- Alienate public land on behalf of and with the consent of the national and county governments
- Monitor the registration of all rights and interests in land
- Ensure that public land and land under the management of designated state agencies are sustainably managed for their intended purpose and for future generations
- Develop and maintain an effective land information management system at national and county levels
- Manage and administer all unregistered trust land and unregistered community land on behalf of the county government
- Develop and encourage alternative dispute resolution mechanisms in land dispute handling and management.

2. Forest Act chapter 385

The act is concerned with forest resource management, administration and conservation for socio-economic development by taking into account:

- Forests play an important role in the stabilization of soils and ground water, therefore supporting reliable agricultural activities.
- Forest protects water catchments and moderate climate by absorbing greenhouse gases.
- Provide the Main locus of Kenya's biological diversity and a major habitat for wildlife.

The Forest act states the benefit sharing model of forest resources for sustainable exploitation.

3. Special Economic Zones Act

Enacted in 2015, this is an Act of Parliament to provides for the establishment of special economic zones; the promotion and facilitation of global and local investors and the development and management of enabling environment for such investments

It has been widely publicized as a significant step in Kenya's efforts to attract greater foreign investment. The SEZ Act does not repeal the EPZ Act. This effectively means that there will be parallel export promotion mechanisms through the EPZ Act and the SEZ Act. The notable beneficiaries of agricultural and livestock activities inclusion are farmers and the horticulture industry players, who were left out of the provisions of the EPZ Act. This will make Bungoma a key beneficiary form this Act given that the plan is promoting agro-industrialisation.

4. Other Relevant Policies:

There are also several policies and strategies (both national and sector based) that address development issues and whose implementation will impact on CSDP:

- National Disaster Management Policy;
- Transport policy;
- Food Security and Nutrition Policy;
- National Environment Policy;
- Policy for Alternative Provision of Basic

- Education and Training;
- National Climate Change Response Strategy;
- National Water and Irrigation Policy;
- Agricultural Sector Development Strategy;
- Land Reclamation Policy;
- National Livestock Policy;
- Forest Policy;

2.4 INSTITUTIONAL FRAME- WORK

Overview

Institutions play an important role in the governing and implementation of development programs within a County. The various institutions involved in development, planning and implementation are outlined below:

1. County Government

The county government is an entity exercising constitutional authority. It is a corporate body with perpetual succession and has all the powers necessary to discharge its functions. The functions that the County Governments have been assigned are mainly; county legislation, exercising executive functions and establishment and staffing of its public service.

The powers of the County Government include:

1. Entering into a contract
2. Acquisition, purchase or lease any land
3. Delegation of any of its functions to its officers, decentralized units or other entities within the county
4. Enter into partnerships with any public or private organization. The contracts shall be legally binding.
5. Ensuring efficiency in the delivery of service or carrying out of a function for which the county government is responsible by establishing a company or contracting any person, firm or other body for the delivery of a particular service or carrying on of a

particular function

2. Parastatals.

These are legal entities that are owned or controlled wholly or partly by the government. Which undertake commercial activities on behalf of the government. The general roles of the parastatals are:

- Provision of services to citizens in various sectors e.g. water
- Implementation of the government policies and legislations.

The major parastatals in Bungoma include:

- a) Nzoia Water Services Company Limited- Its mandate is to provide cost effective and affordable quality water and sanitation services to the residents of the respective towns. The core activities are mainly production and distribution of water, treatment works and sewerage services.
- b) National Cereals and Produce Board- Its main role involves commercial grain trading. It also offers additional services such as leasing out surplus facilities, grain drying, grading and warehousing.
- c) Nzoia and Mumias Sugar Company- Their main roles constitute production of sugar and supports cane production through the provision of extension services to farmers.
- d) Coffee Board of Kenya- Its function is to help farmers in the production, processing and value addition of coffee. It also provides advisory services and undertakes research relating to coffee production.
- e) Kenya Agricultural and Livestock Research Organization (KALRO)- KALRO is a corporate body created under the Kenya Agricultural and

Livestock Research Act of 2013. Its roles among others include:

- Promote, co-ordinate and regulate research in crops, livestock, genetic resources and biotechnology in Kenya
- Promote the dissemination and application of research findings in the field of agriculture

3. Private Sector

The private sector within the County comprises of financial institutions, SMEs, educational institutions and credit and savings societies. The financial institutions in the County are numerous with most of them distributed within the major urban centers and they include Equity bank, KWFT, KCB bank, Co-op Bank. These institutions provide financial services to its members i.e. they provide credit facilities and enable flow of money through the economy. Private educational institutions comprise mostly of ECD schools followed by primary schools, secondary and technical institutes. These institutions have helped reduce illiteracy levels within the county.

4. Civil Societies

Civil societies in the county comprise of Non-Governmental Organizations, Community Based Organizations and Religious Organizations. The major civil society organizations in the county include; Community Research in Environment and Development (CREADIS), World Vision, ACE Africa, One Acre Fund and Kenya Water for Health Organization (KWAHO).

Table 2: Actors and Contribution in development, planning and implementation in Bungoma County

Actors	Contribution
National Government	Provision of level 5 hospitals So Source of funds Construction of major transport corridors
County Government	Source of funds Expansion and improvement of road infrastructure Water projects Construction and improvement of pre-primary and primary schools
Private sectors	Availing loans to small scale businesses to enable economic empowerment Training on entrepreneurship
Civil society	Involved in water projects Promoting peace negotiations in hot spot areas Building affordable educational/health facilities Establishing feeding programmes Environmental conservation
Co-operatives	Creation of direct and indirect employment Facilitating marketing arrangement for coffee, dairy and other products

Source: Bungoma sector plans, 2014

2.5 GOVERNANCE

Governance is an essential tool in determining the level of success or failure of any intervention in the County. The County has several institutions which play a major role towards development in the region.

1. NATIONAL GOVERNMENT

Roles of the National Government

- Formulation of national policies and standards and provision of policy direction to the counties
- A constitutional duty to ensure revenue allocations to the counties, so as to enable efficient and effective management and development in the counties
- Financing of major projects that requires the governments intervention within the counties

- Formation and implementation of Education policy, standards, curricula, examinations and the granting of university charters
- Provision of Universities, tertiary educational institutions and other institutions of research and higher learning and primary schools, special education, secondary schools and special education institutions.
- Facilitate national statistics and data on population, the economy and society as a general

Financial Capacity

Revenue raised nationally is shared equitably among the national and county governments. The national government transferees 43% of its revenues to the county governments. County governments may be given additional allocations from the national government's share of the

revenue, either conditionally or unconditionally (CRA, 2014). Bungoma County was allocated Kshs. 8.27 billion as its equitable shares by the national government as at 2014/2015 budget allocations.

Limitations

1. Inadequate funding
2. Corruption
3. Lack of comprehensive budgets from the county governments.
4. Controversies between the distinct functions of the county government and National government

- To facilitate and coordinate County public works and services including storm water management in built up areas and water and sanitation services
- To ensure protection of natural resources and environmental conservation in the county
- To enable mobility, accessibility and connectivity through provision of proper transportation and infrastructure in the county.
- To facilitate and monitor the process of planning, formulation and adoption of the county plans within the county.

2. COUNTY GOVERNMENT

The county government has been allocated functions as per the constitution to undertake mainly; County legislation, exercising executive functions and establishment and staffing of human resources for the county.

Financial Capacity

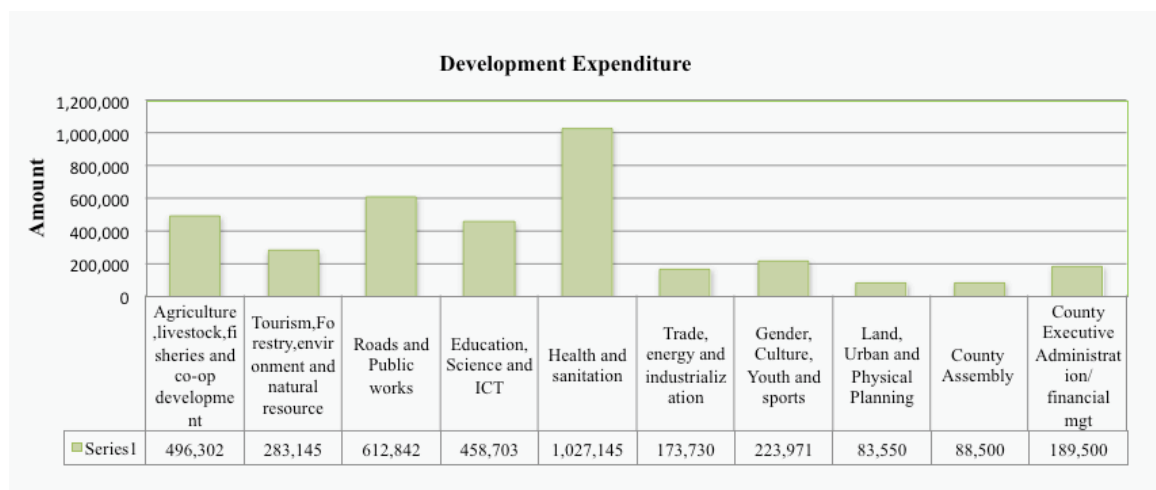
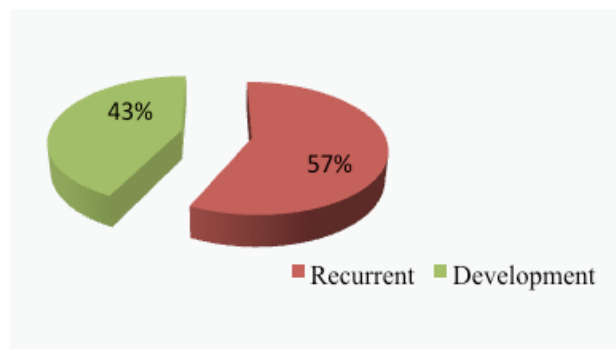
Bungoma County budget revenue allocations for the year 2013/2014 were as follows:

The County allocated 43% of its revenue to recurrent expenditure and 57% to development expenditure. This distribution is depicted below in Chart 1

Roles of the County Government

- To ensure there is proper coordination in terms of the participation of communities in governance issues at the local level
- To provide pre-primary education services, village polytechnics, home craft centers and child care facilities
- To coordinate in the implementation of specific national government policies on natural resources and environmental conservation.

Bungoma County Expenditure (%)



Source: CRA, 2014

Successful projects done by the County government

1. Economic Stimulus Projects on: model primary schools and secondary schools in all constituencies in the county Phase One completed
2. Completion of specific components on Central Naitiri Gravity Water Project in Bungoma North sub-County and Tongaren constituency.
3. Completion of specific components on construction of Eight Wells in Bungoma, Kimilili sub County and Kimilili constituency
4. Completion of Lungayi animal feed cottage industry in Bungoma North sub-county to produce animal feeds

Table 3: Failed Projects

Project Name	Location	Description of Activities	Reasons
Model health centres	All constituencies	Construction of wards, injection rooms, stores	Phase II funds were not released
Procurement of motor bikes and bicycles for health workers	All constituencies	Procurement, delivery and servicing	Funds were not released
Mukwa- Kibuke-Siboti water project	Bumula	Intake works, piping,	Poor technical designs, under-valuation of some components, non-involvement of technical personnel
Sports lottery fund Gender, culture, sports	All sub counties	Legislation, formation of implementation structures	Financial constraints
Disability Fund	All sub counties	Legislation, formation of implementation structures	Financial constraints
Youth Empowerment centre	Bungoma Central sub-County	Tendering, construction, fencing, installation of electricity	Shortage of funds

Source: CIDP, 2014

Limitations

1. Lack of citizen participation

The inclusion of citizens in processes of decision making is poorly executed. The residents have complained of not being involved in the past budget making process. Their inclusion in the process through the citizen forum was generally to hear and stamp the budget proposals already constituted by the county government.

2. Inadequate financial resources

The County is experiencing difficulties in finding sufficient, appropriate and continuous funding for their work as the national government allocations are not sufficient for the development in all sectors.

3. Poor coordination of past and current interventions by the county government

The County Government has overlapping projects where the institutions have failed to distinguish the existing projects in the old dispensation and struggle to compete with each other just for funding.

4. Corruption

In the county government, some of the appropriations that are deemed not necessary in addressing the county problems were still adopted and approved by the county assembly.

5. Mismanagement

The lack of a clearly articulated framework on performance of the functions of the new government offices has hindered proper management of its duties and responsibilities to serve the people.

6. Unskilled and limited personnel

The County has not employed the necessary technical staff personnel required to undertake the responsibilities of fast tracking the projects proposed. The existing personnel in most sectors of the county are over helmed by the devolution to serve in the different wards as they await the recruitment of extra personnel.

3. PRIVATE SECTOR

The private sector plays a major role in the county. It has partnered with various development sectors to ensure that drivers of development in the

county are met.

The private sector is comprised of; financial institutions, SMEs, educational institutions and credit and savings societies.

Roles of the private sector

1. To promote quality education and training, ICT and innovation in the County
2. To promote and partner with ministry of health in health care provision i.e. construction of private clinics & mission hospitals
3. Provision of training & employment by investing in the establishment of County innovation and skills development centers with linkages to industry stakeholders which provide opportunities for employment creation.
4. Provide hospitality services and promote investment in conservation of tourist attraction areas/sites
5. Promotion of private enterprises and competition to enhance economic development
6. Providing knowledge and expertise on sustainable land/ space utilization and investing resources as per the spatial plans

Effectiveness/Limitations

1. Lack of infrastructural facilities

The private sector cannot fully provide for the community's development needs when the county has not availed infrastructure such as accessible roads, reliable water sources and energy sources.

2. Lack of sufficient coordination among partners

There is un-coordination among partners implementing community-based programmes, resulting in duplication of services, conflicts and inadequate utilization of resources.

3. Lack of a County Industrial Development Policy

This has denied the sector the availability of industrial development guidelines as well as identifying areas of industrial investment.

4. Overreliance on agriculture based raw materials

Industries in Bungoma County are focused on agricultural produce of the land e.g

sugarcane, cotton etc. which fetch low prices thus discouraging producers.

4. CIVIL SOCIETY

This is an aggregate of non-governmental organizations and institutions that are concerned in the social well-being of citizens. They are usually financed by a variety of public and voluntary contributions i.e. grants from foreign organizations and donors, governmental agencies and private organizations.

Roles of Civil Societies

- a) Creation of awareness on rights and privileges of the public/citizens
- b) Provide technical support & training on food security & modern Agricultural farming methods
- c) Provision of affordable education institutions for pre-primary and primary education e.g. bridge international academies
- d) Partnership with the County Government to improve the quality of health indicators in the county
- e) Provision of Health care, feeding programmes training
- f) Trainings on environmental management and Conservation of catchments areas Stakeholders in community development.

Limitations

1. Political interference
2. Retrogressive cultural practices
3. Poor coordination with other actors resulting in duplication of projects
4. Poor infrastructural facilities
5. Poor Governance and management

5. CO-OPERATIVES

Bungoma County has 170 registered co-operatives. However, only 112 are active with 31 being coffee marketing societies and over 50 are savings and credit co-operatives. Other types of co-operatives include dairy and housing investment.

The total turnover of co-operatives in Bungoma County is estimated at one billion.

Roles of Co-operatives

1. Promotion of financial and banking services
2. Provision of extension and advisory services
3. Facilitate social development and well-being of the farmers
4. Conducting training and education on farming methods, financial issues among others

Limitations

1. Weak marketing arrangements

The co-operatives lack marketing strategies and information for agricultural produce and therefore do not fully utilize the potential of resources from farmers. Most of the small scale farmers are not informed of the financial services accessible to them.

2. Limited human resource personnel

The co-operatives have understaffed technical and support staff to handle devolved functions in the various sub counties.

3. Poor leadership and management

There are political interferences which are experienced in the co-operatives election of its management. This has seen election of leaders with political affiliations who are not interested in the social economic development and interests of the members.

4. Inadequate financial resources

The co-operatives have poor institutional arrangements which are unable to mobilize financial resources for extension services and support to development projects.

5. Weak policy and legal framework

The regulations put in place concerning co-operatives are not being followed through by registered co-operatives and do not address the operation and management of co-operatives effectively.

2.6 RELATIONSHIP AMONG THE INSTITUTIONS

Figure 4: Relationship among institutions

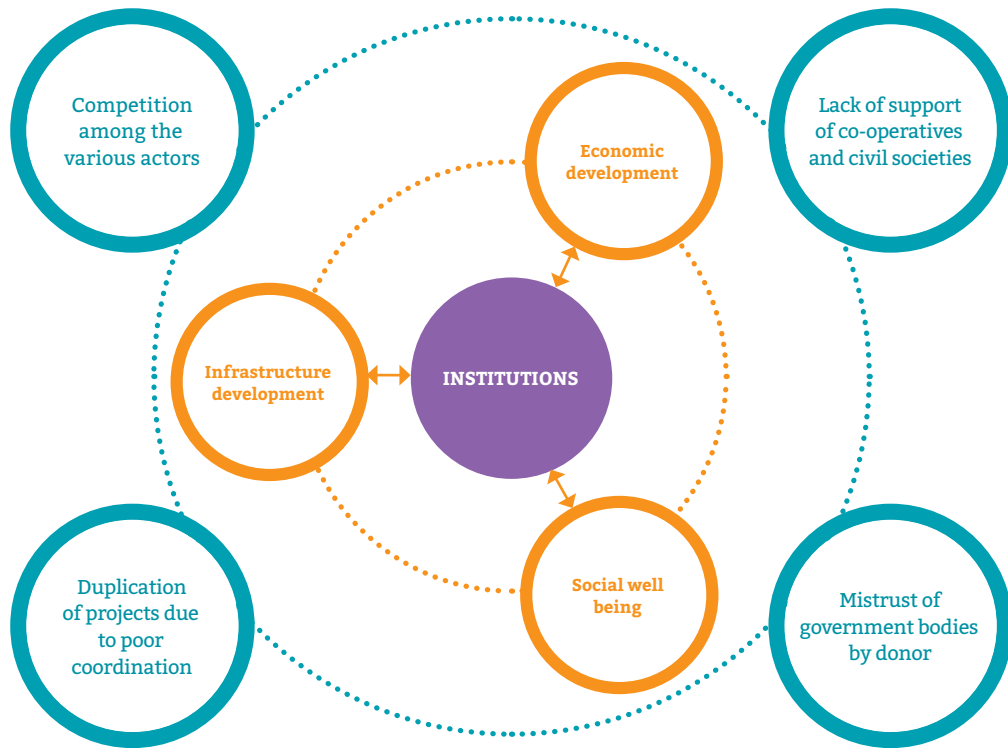


Figure 4: Relationship among institutions

2.7 POTENTIAL OPPORTUNITIES AND CONSTRAINTS

Potential Opportunities	Constraints
<ul style="list-style-type: none"> • Well-developed institutions and policies in delivering public service • Opportunities exist to train the community on various functions of the county government • Support by civil society organizations to initiate development projects • Devolved funds from the national government to help in steering development 	<ul style="list-style-type: none"> • The general level of awareness of the public about the provisions by the constitution concerning service provision is low • Many Acts that exist promote conflict and competition in the public domain instead of cooperation and coordination in planning which further weakens the planning capabilities of County Government. • Political interference in finance allocation and infrastructure development • Weak policy and legal framework in some institutions • Poor interdepartmental linkages and operations • Poor coordination of past and current interventions by both State and Non-state actors • Partial involvement of community participation • Mismanagement of funds on non-development projects



CHAPTER THREE: POPULATION AND DEMOGRAPHY

3.0 OVERVIEW

Population is the number of people living within a particular area. Demography is the study of human population - their size, composition and distribution across place – and the process through which populations change. Births, deaths and migration are the main demography characteristics that produce population change or stability (Thomson, 2007). Population is the generating element of the initial pulse in the system of planning and the reason for being for the whole process.

Demographic change has spatially differentiated impacts on residential, traffic and technical infrastructure as well as on resource and land consumption (Kroll & Kabisch, 2012). Knowing the number and geographical distribution of the population, as well as the factors determining population change over time are important aspects for organizing and managing the economy and society.

In Bungoma's spatial planning, population analysis intends to determine the county's future course for the plan's validity (10 years), shaping the future of local communities at the end of the planning period. This chapter analyses the population size, growth and distribution and demographic characteristics in order to come up with a socio-economic forecast for the county.

3.1 DEMOGRAPHIC CHARACTERISTICS

3.1.1 Fertility Rate, Age sex Ratios and Household size

The population ratio is 95 men to 100 women respectively for Bungoma County i.e. a ratio of 0.95%. In all the sub-counties, the female population is higher than that of the male, this is illustrated in Graph 3, which shows the population Distribution of male to female per sub-county.

3.1.2 Morbidity, Mortality and life expectancy rates

The three main causes of morbidity and mortality in Bungoma County include HIV/AIDS, malaria infections and the inadequate access to appropriate health care (KNBS, 2013).

Bungoma County has 10 hospitals, 16 health centers, 88 dispensaries, 27 clinics and 134 community units; most of them are located in the major towns hence cannot be accessed easily by the people living in the rural areas. There are also inadequate medical personnel where in the whole of Bungoma County there are 70 doctors, 742 nurses, 100 lab technicians and 500 community health workers (an average of 1 doctor to 34,426 people) (Fieldwork Survey, 2015).

This cannot meet the healthcare demand for the current and future population. With access to health care in the county, AIDs and Malaria can be reduced substantially. The table (14) below, shows causes of morbidity and mortality in Bungoma County.

Table 4: Causes of Morbidity and Mortality in Bungoma County

Cause of death (Mortality)				Causes of ill health (Morbidity)			
National		County level-specific		National		County- specific	
No.	Condition	No.	Condition	No.	Condition	No.	Condition
1	HIV/AIDs	1	Malaria	1	HIV/AIDs	1	Malaria-40%
2	Perinatal Conditions	2	Pneumonia	2	Perinatal Conditions	2	Respiratory Tract Infection-19%
3	Lower respiratory infections	3	Anaemia	3	Malaria	3	Diseases of the skin -7%
4	Tuberculosis	4	Tuberculosis	4	Lower respiratory infections	4	Diarrhea – 4%
5	Diarrheal diseases	5	HIV/AIDs	5	Diarrheal diseases	5	Typhoid – 3%
6	Malaria	6	CVS diseases	6	Tuberculosis	6	Pneumonia-3%
7	Cerebrovascular disease	7	Meningitis	7	Road traffic accidents	7	Accidents – 3%
8	Ischaemic heart disease	8	Malnutrition	8	Congenital anomalies	8	Uti- 2%
9	Road traffic accidents	9	Diabetes Mellitus	9	Violence	9	Eye infections – 1%
10	Violence	10		10	Unipolar depressive disorder	10	Dental – 1%

Source: Kenya Service Availability & Readiness Mapping (SARAM, 2013)

3.1.3 Impacts of HIV/AIDS

The HIV/ AIDs epidemic in Kenya has evolved, since the first case was diagnosed in 1984, to become one of the major causes of mortality. The epidemic has affected all sections of society – children, youths, adults, women and men.

A trend analysis of HIV prevalence in Kenya since 1990, shows that it was at its peak of 10.5% in 1995-96, after which it declined by about 40% to approximately 6.7% in 2003. Since then, the prevalence has remained relatively stable. HIV prevalence stands at 3.5% in Bungoma County.

By the end of 2011, there were 27,765 people living with HIV in Bungoma County. Children constitute 16% of those living with HIV in the county (County Profile, 2013).

Table 5: HIV/AIDs Burden in Bungoma

Total Population (2009)	1,375,063
HIV adult prevalence (overall)	3.5%
Number of adults living with HIV	23,431
Number of children living with HIV	4,367
Total number of people living with HIV	27,765

Source: Bungoma County Profile, 2013

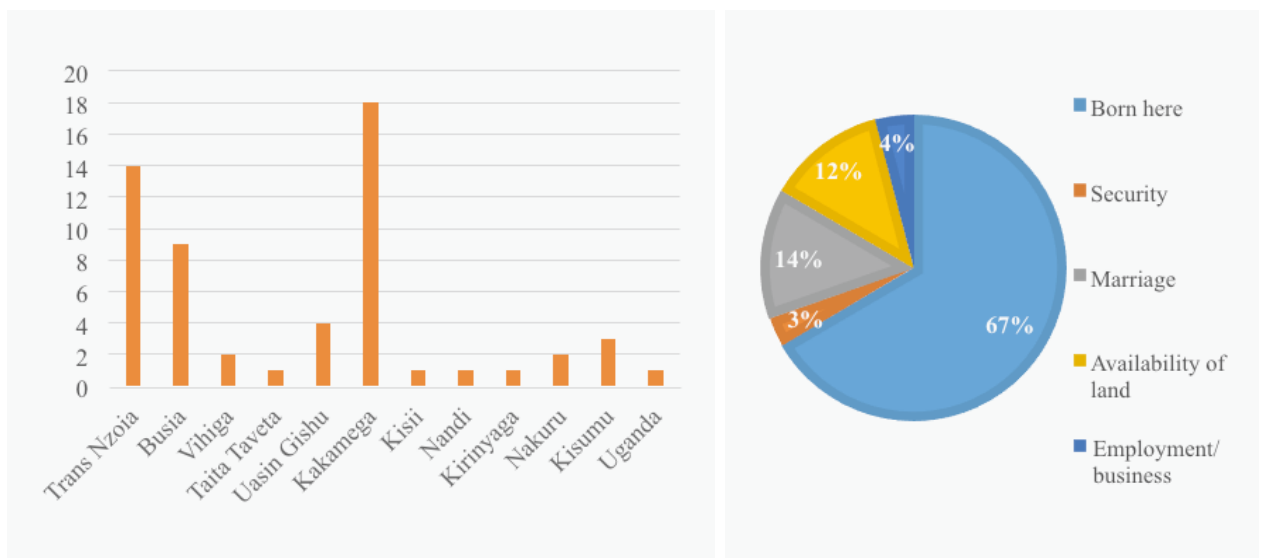
3.1.4 Life Expectancy in the County

In Bungoma, the average life expectancy is 60 years, with that of the females at 61 years and 59 years for males. (County profile, 2011).

3.1.5 Migration Patterns

Field survey, 2015 reports indicates that the rate of in-migration to Bungoma County is slightly lower, i.e. most of the residents are born within the county. Most of the people who settle in Bungoma County are from the neighboring counties, with Kakamega and Trans Nzoia counties accounting for the highest number of in-migrants. The in-migrants come for various reasons which include; marriages, security reasons, availability of land, seeking employment opportunities among other reasons.

Graph 4: Original Places of residence for the inhabitants



Source: Two Ems associates, 2015.

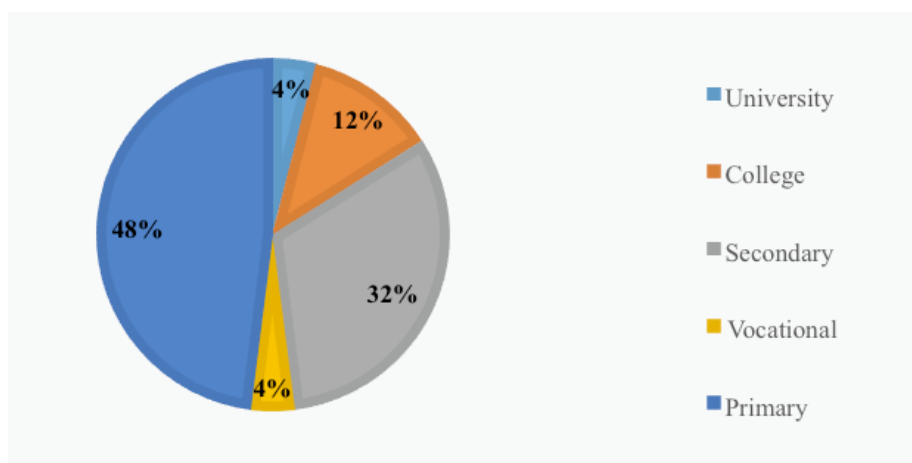
3.2 HUMAN RESOURCE DEVELOPMENT AND UTILIZATION

3.2.1 Literacy levels and skills development

Education is seen as a means of improving people's welfare. The Kenya Integrated Household and Budget Survey Report of 2011/12 indicates that the 80.5% of Bungoma population aged over 15 can read and write while only 14.4% cannot read and write.

From the Bungoma County Baseline Survey report 2014, majority of the population's highest level of education lies in primary school at 48%, followed by secondary school at 32% and the least is university and vocational/ tertiary institutions at 4%. This implies that the population can effectively participate in the County's social, economic, environmental and political affairs as well as make informed decisions. The literacy levels in Bungoma County are as illustrated by the chart (4) below:

Chart 4: Literacy level in Bungoma County



Source: Field Survey, 2015

Bungoma County has a school drop-out rate of 22% in the transition from primary to secondary education. This is influenced by lack of school fees to proceed to secondary education. The drop-out rate for the girls is 15% and 10% for the boys. This is due to early pregnancies by girls and early marriages experienced by both genders (Ministry of Education, 2014).

The county experiences low enrolment of the girls because of early marriages after the primary education. The enrolment of the boys is also relatively low because of child labor whereby the boy child is forced to go look for alternative means of livelihood i.e. becoming a boda driver (County Director of Education)

The ratio of teachers to student is 1: 50 (Public Schools) and 1: 29 (Private Schools) for primary and secondary schools respectively (Kenya County fact sheets, 2011). There is an inadequate number of government qualified education officers to inspect on the status of the schools within the county. The county has a shortfall of 2,430 teachers in the primary level and 1,682 teachers in the secondary level. (MoE, 2014).

There is community interference due to cultural and tribal differences in Bungoma County especially in Mt. Elgon region. For example the Friends Elgon and Friends North churches do not allow children from either community i.e. Sabaot and Bukusu to attend their schools or build any schools. Rejection of the teachers by some communities due to their ethnicity and personal displeasure and culture which do not value girl child education has affected education levels. (County Director of Education, 2015).

3.2.2 Employment levels

According to 2009 Population and Housing Census, the number employed formally and informally is 458,222 which represents 63.3% of labor force. Therefore the unemployment rate in the County is 36.7%. The County in labor intensive sector, usually creates a conducive environment to promote entrepreneurship and creative employment, so as to minimize social ills.

The County should implement the directive principles underpinning Public Service Employment where 70% is sourced locally and 30% from outside (CIDP, 2013 & KNBS, 2009). The 2009 population and Housing Census covered in brief the employment levels against the level of education in Bungoma County as shown in table 16 below:

Table 6: Overall Employment by Education Levels in Bungoma County

Education Level	Work for pay	Family business	Family Agricultural holdings	Intern/ Volunteer	Retired/ Home makers	Full time Student	Incapacitated	No work	No. of individuals
Total	13.6	12.0	50.3	1.0	4.1	14.9	0.4	3.7	659,073
None	13.9	12.1	56.6	3.0	5.6	0.8	2.4	5.7	34,346
Primary	10.1	11.3	55.0	0.7	4.2	15.3	0.4	3.1	378,406
Secondary+	18.8	12.9	42.3	1.1	3.9	16.3	0.2	4.5	246,321

Source: KNBS, 2009

In Bungoma County, 14% of the residents have no formal education, 10% of those with primary education and 19% of those with secondary or above level of education are under employment.

3.3 POVERTY

Poverty is the state of general scarcity, it is also defined as a pronounced deprivation in well-being; it includes low level incomes and the inability to acquire basic goods and services, for basic survival with dignity. It comprises of, low levels of health, education, poor access to clean water and sanitation, insecurity, insufficient capacity and opportunity among other factors (World Bank, 2011).

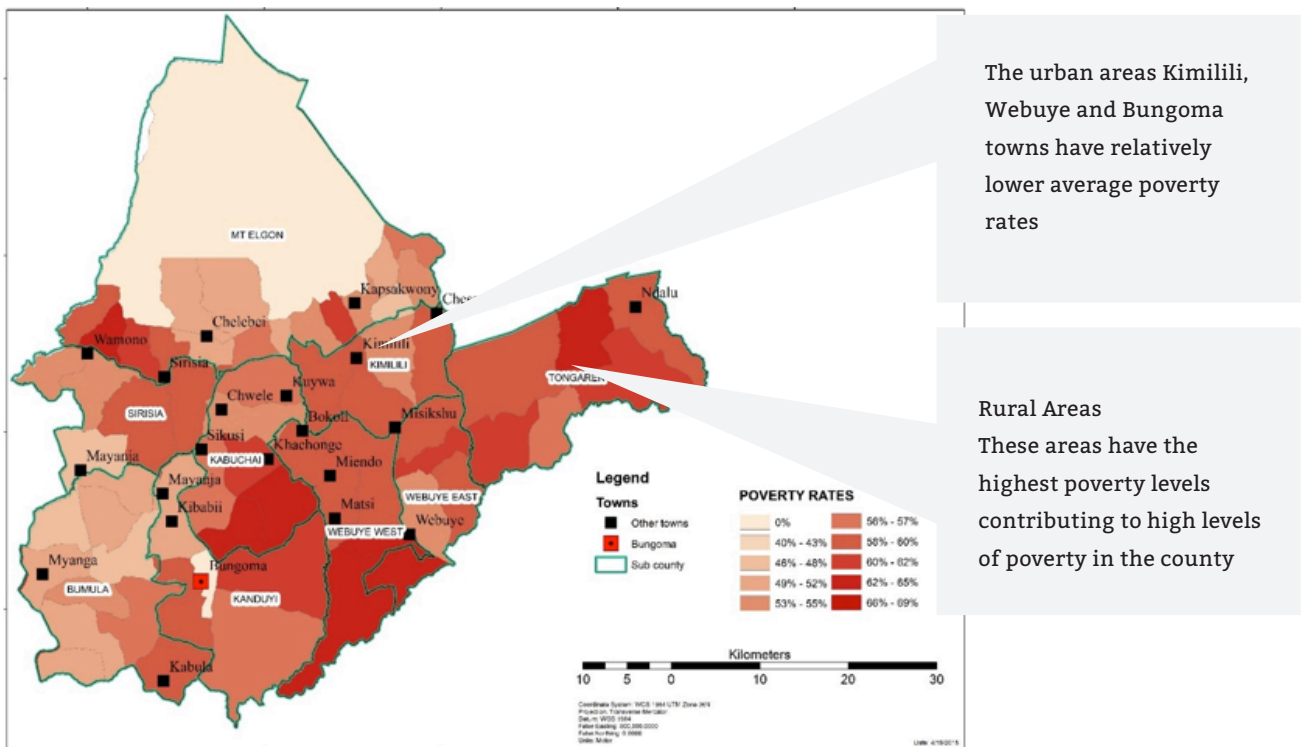
- Absolute Poverty is widespread in the County and currently stands at 52%,
- Rural poor are about 53 %,
- Food poor are estimated to be about 42% (CIDP, 2013).

There has been increase in poverty levels within the county as a result of increased living standards, increase in population, unstable sources of income, alcoholism etc. The maps below show the different aspects of poverty in Bungoma County.

3.3.1 Poverty rates

This is the number of people who fall below the poverty line and the total population. The poverty line is calculated by taking half the median of household income. Map 21 below, illustrates the poverty rates in Bungoma County

Map 32: Poverty Rates in Bungoma County



The urban areas Kimilili, Webuye and Bungoma towns have relatively lower average poverty rates

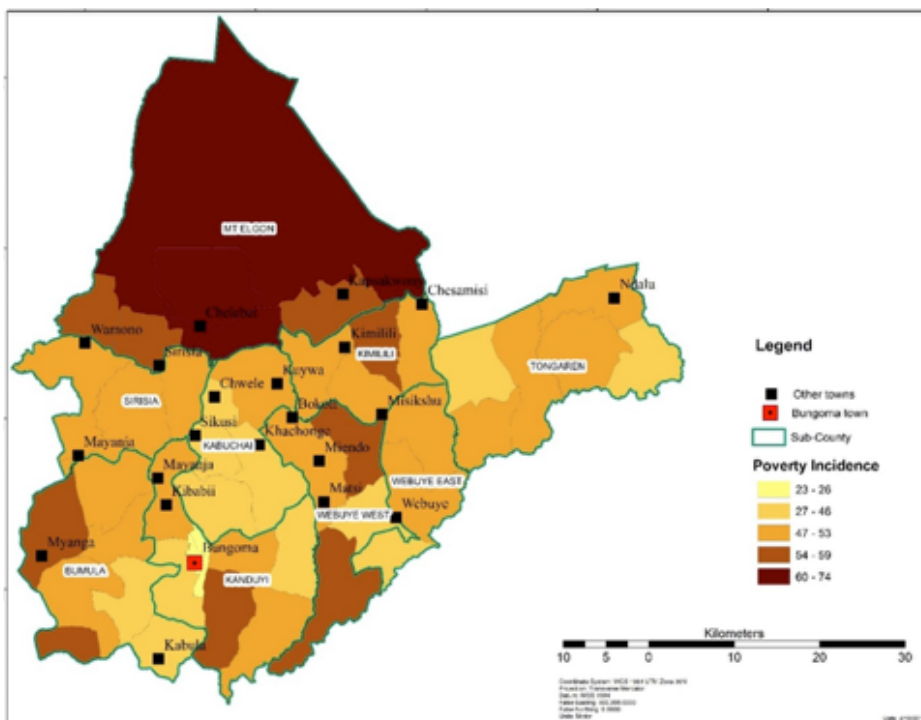
Rural Areas These areas have the highest poverty levels contributing to high levels of poverty in the county

Prepared by: Two Ems associates, 2015.

3.3.2 Poverty Incidence

Poverty Incidence is the number of households having an income below the Poverty Threshold.

Map 34: Poverty Incidence map



Map 26: Poverty Incidence map

3.3.3 Causes of poverty

- **Ignorance:** Lack of access to information is a major handicap to human development in Bungoma.
- **Cultural Practices** Bungoma district is considered conservative and traditionalist. Although, culture has many positive benefits to the community such as social ethics and cohesion, ignorance of modern knowledge and monetary economy greatly compromises the future of the youthful population. Such practices include circumcision which are disruptive to the education of boys and pose great pregnancy risks to adolescent girls. Marriages also contribute to fast growing population. Many families have as many as twenty children, whose parents are ill equipped to afford a decent education.
- **Rural-Urban Migration** The education system is skewed to white collar employment and imparts no practical day-to-day living skills. Graduates of primary, secondary, and even university expect to be employed. This causes a large exodus to urban centers, especially Nairobi in search of the elusive white-collar job. The rural-urban migration also depletes the rural areas of able-bodied men who leave behind women as heads of households.
- **Lack of Infrastructure:** Infrastructure is a major constraint to the development in Bungoma e.g. the county has few good roads, few house have power and water connection.

Reason for poverty disparities

Ignorance and low levels of education are the major cause of poverty as they lead to high unemployment rates and poor farming practices.

Furthermore, education disparities within sub-counties contribute to the poverty levels. 61%

of the county's residents have only primary level education. Chepyuk ward has the highest share of residents with a primary education only at 70%. Meanwhile, 18% of the county's total population has no formal education. Bumula ward has the highest share of residents with no formal education at 23%.

Other factors that cause poverty include; Cultural Practices, Rural–Urban Migration, inadequate Infrastructure etc. (KNBS, 2014). Investment in education is a stepping stone towards improved development and living standards.

3.4 COMMUNITY AND CULTURE

A community is a group of people living and sharing common characteristics or interests and perceiving itself with distinct respects from the larger society. These characteristics can either be social, religious, and occupational among others. Culture defines the way human beings live and interact and includes behavior and beliefs, language, and material culture (artifacts characteristics of a particular social, ethnic or age-group).

Plate 4: Busaa Drinking



Busaa Drinking in Bukusu Culture is a unifying act that allows male and female members of the society to interact and share ideas.

Source: Field Survey, 2015

Aspects of Culture

Culture is defined as an integrated system of learned behavior patterns created and possessed by people.

1. It is argued that when people become confined to their culture such that they cannot reason beyond, culture becomes what is known as a tradition
2. Interestingly, tradition is defined as a way of doing things based on a belief system

Land submits that each nation has its common belief system which can be regarded as the national average pattern of thought.

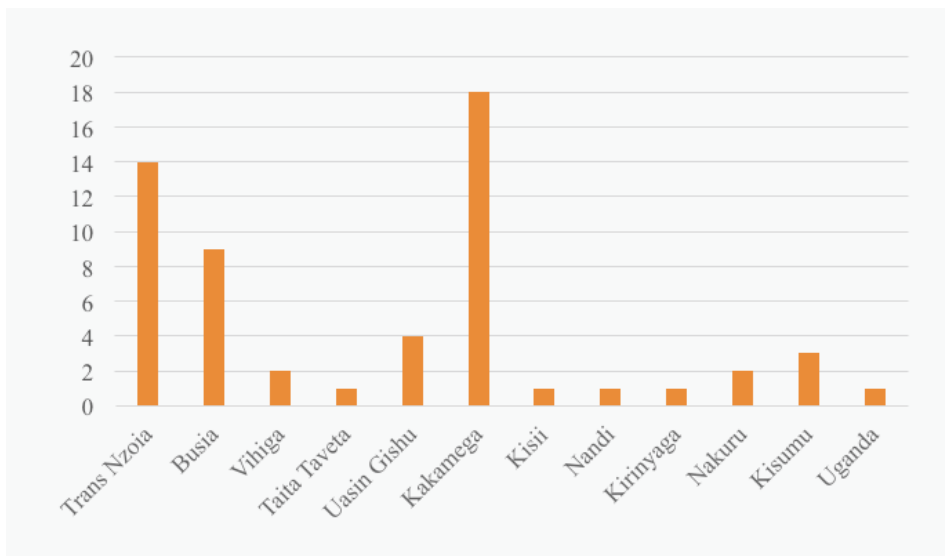
3.4.1 Communities in Bungoma County

Bungoma County is majorly inhabited by the Bantus (Abaluyha). Other smaller communities include; Plain Nilotes (Iteso), Highland Nilotes (Sabaot and Nandi) and a small Cushitic group (Ogiek/ Ndorobo)

The western region is majorly characterized by the Abaluyha community which is dominant in the region and other ethnic communities in the region are the Iteso, Sabaot which is a minority ethnic community and the Nandi and the Ogiek (Ndorobo) which are also minority ethnic communities. The northern part of the county is majorly inhabited by the Sabaot along the slopes of the mountain with the Bukusu occupying majorly the southern and the central regions of the county.

To enhance this community culture; Cultural events are organized in the county to be able to showcase the Bukusu, Iteso and Sabaot culture with the aim to promote tourism in the county and also maintain the cultural practices in the communities. It is important to note that the towns in Bungoma County are cosmopolitan consisting of various communities across the counties and from outside countries such as Uganda. This is illustrated in graph 5, below:

Graph 5: Places of origin of Bungoma County Residents



Source: Field Survey, 2015



1. Bukusu Community
Plate 5: Circumcision ritual in Bukusu Culture
Source: Field Survey, 2015

Table 7: Bukusu Culture Practices

	Features
Areas Occupied	Southern and the central regions of Bungoma County
Main tribe	Bukusu community Bukusu sub tribe is the majority in the Abaluhya and it has 21 politically independent clans among them; Vakoi, Vakiabi, Vanang'ana, Vamosi.
Settlements	The community lives in small groups to be able to share the resources A man is the head of the family/ household and possesses exclusive rights and dominance to properties ranging from land to the cattle
Culture	Men have the duty to do wood curving and building of the homes The Bukusu culture does not allow the female members of the family to own any properties especially land Women do domestic work such as cooking, farming and collecting of firewood while The men are taxed with the duty of being the family protectors Some parts of the chicken as specifically for the male gender and it was considered taboo for the women to eat the parts Polygamy is practiced Circumcision of the male child is considered a rite of passage to adulthood in the community There are eight age-groups (Bakolongolo, Bakikwameti, Bakananachi, Bakinyikewi, Banyange, Bamaina, Bachuma, Basawa), forming a cyclical system, with each age-group lasting for 10 years apart from Bachuma which lasted for 14 years from 1872 – 1886 Bukusu traditional wedding takes place mostly during sun sets but the bride goes back home to her maternal home where with the setting of the sun she prepares a meal for her groom. Funeral rites among the Bukusu community are a source of resource linkage. Funeral ceremonies take place over days and even weeks where large numbers of mourners congregate at the deceased home. Food is considered to be very essential to the community and the mourners are expected to eat over the period of mourning.
Artefacts used	The women used cooking pots to cook, body ornaments such as bangle bracelets, necklaces and earrings etc.
Political/ Social units	The social pillar of the Bukusu community is the family The community is the highest political authority and was headed by the village headman, (Omukasa) who was usually elected by men of the village.
Staple food	Chicken (Ingokho) and Ugali (Obusuma)
Economic activities	Crop farming and livestock keepers with local cattle breeds most common.

Source: *The Bukusu of Kenya: Folktales, Culture and Social Identities*; Durham, NC; Carolina academic, 2011



2. Iteso Community
 Plate 6: A grass thatched House in Iteso Compound
 Source: Field Survey, 2015

Table 8: Iteso Culture

	Features
Area Occupied	In Bungoma they occupy Mt. Elgon region.
Main tribe	Iteso They have nine clans
Political/ Social Unit	Leader of the each clan was called Aplon ka Ateker, elected by elders at a ceremony known as airukorin. Leadership titles were not hereditary. An Iteso clan leader was assisted by a council of elders known as Airabis or Aurianet The leaders acted as arbitrator in the event of disputes (who held court for cases like murder and debts).
Culture	After settling a court dispute, a ceremony known as epucit or aijuk was performed, whereby, a bull was offered, killed, roasted, and eaten This act was intended as a gesture of renewed cooperation between the parties. The appropriate compensation would then be handed.
Economic Activities	Traditional food consisted of millet and unsalted peas with groundnut paste and oil. There were a variety of other foods such as wild berries, pumpkins, beans, meat (domestic and wild), milk, butter. The women did not eat together with the men. Agriculturalists, planting cash crops such as cotton and tobacco as well as staple foods such as cassava and millet married women were in charge of baskets, gourds, calabashes, winnowing trays, grinding stones, pots, brooms, pestles, mortars, ekigo (ladle for stirring millet) and eitereria (!shing basket). The men were responsible for spears, shields, arrows, bows, axes for cultivating the fields, and musical instruments
Staple food	Cassava and Millet

Source: TARA, 2013

3. Sabaot

	Features
Main tribe	Southern Nilotic group
Area Occupied	Mount Elgon area
Language	Seven dialects further categorized into Northern dialect, Central dialect and Southern dialect: The Northern dialect which is on the northern side of Mount Elgon and in Uganda comprises of Kupsapiny, Mbay and Sor clusters. The Central dialect in Kenya consists of Somek and Kony clusters Southern dialect comprises of Pok and Bong'om (Reviving Marginalized Languages in Kenya)
Culture	They allow intermarriages with other communities hence the dialects are mixed to a large degree e.g. Bong'om, Tachoni and the Terik.
Economic Activities	Cattle keepers and also grow crops

Source: Kipsisey, 2010



4. Ogiek community
Plate 7: Ogiek women showing her artwork.
Source: Field survey, 2015

This is one of the smallest communities in Bungoma County. They live on the slopes of Mount Elgon in Kenya.

The Ogiek community in the region have always been known to be hunters and gatherers and they have always to present lived in the forest but have adapted to practise pastoralism as an economic activity.

The social pillar of the community was small units called Pororiet with each of these units having a number of clans with the community having a total of 32 clans.

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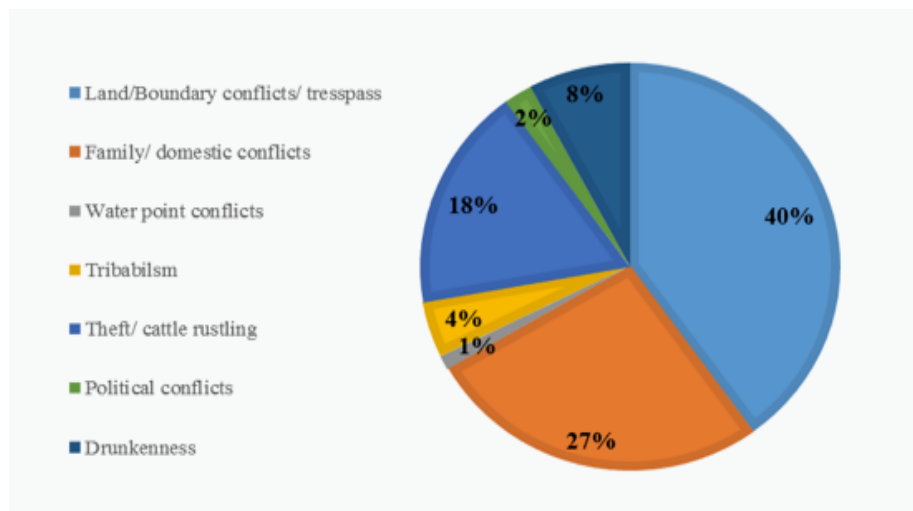
3.5 CONFLICTS AND CONFLICT RESOLUTION

Conflicts between communities and counties have been a matter of cultural, resource-use and economic related issues. The inter-communal activities have been the time immemorial causes of conflict. This has changed overtime as the present day conflicts are caused by complex factors such as: the diminishing resource capacity, commercialization for monetary gains and also the entry of Lethal Weapons in the communities, political conflicts and boundary disputes among others.

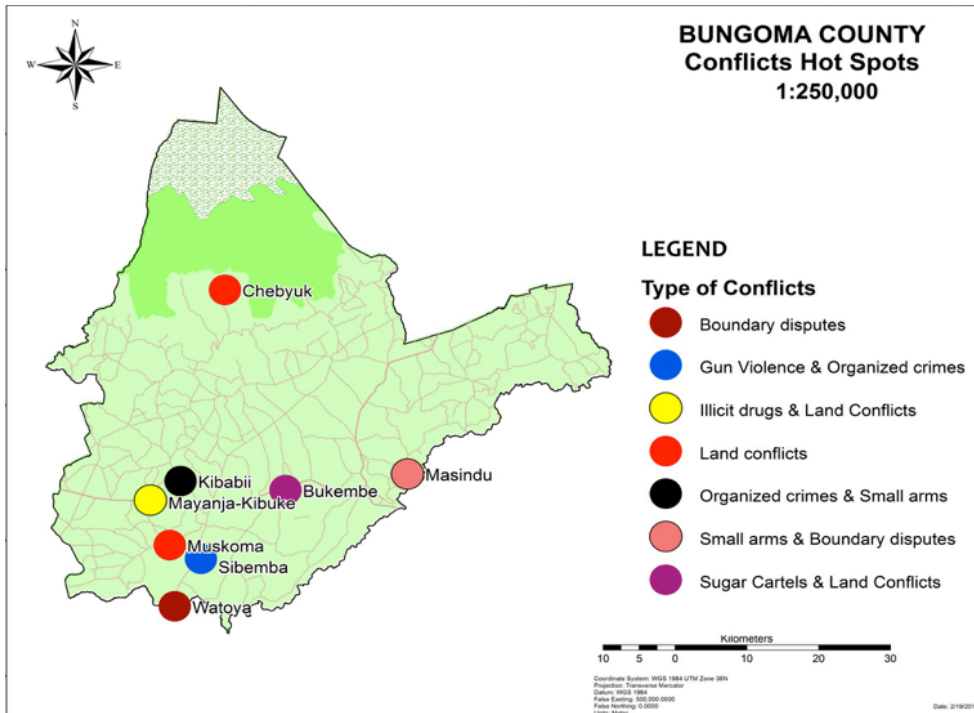
3.5.1 Major types of conflicts in the county

Chart 5 below, illustrates the kinds of conflicts in Bungoma County and their level of magnitude. From this chart, the major conflict is the land/ boundary conflicts/ trespassing at 40%, followed by family or domestic conflicts.

Chart 5: Types of Conflicts in the County



Map 28: Bungoma conflict hotspots as of 2013/2014



Prepared by: Two Ems Associates. 2015

3.5.2 Causes of conflict

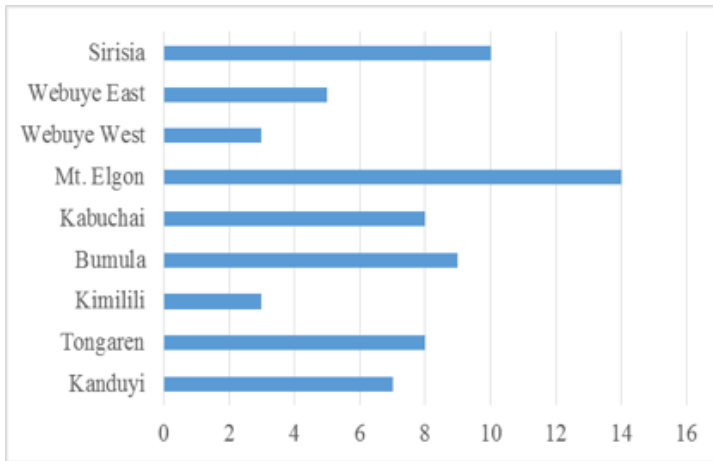
Bungoma is a relatively peaceful county with an admirable community co-existence. However, as with any human society, there are varying incidences here and there that cause conflicts. The leading causes include:

- Land boundary and land disputes
- Family conflicts
- Sporadic, politically instigated conflicts.

All these however, remain at a controllable level. From the survey carried out, most conflicts are solved by village elders and the chiefs yet there are other conflicts resolution mechanisms that can be employed e.g. rehabilitation, negotiation and establishment of by-laws that ensure peaceful co-existence.

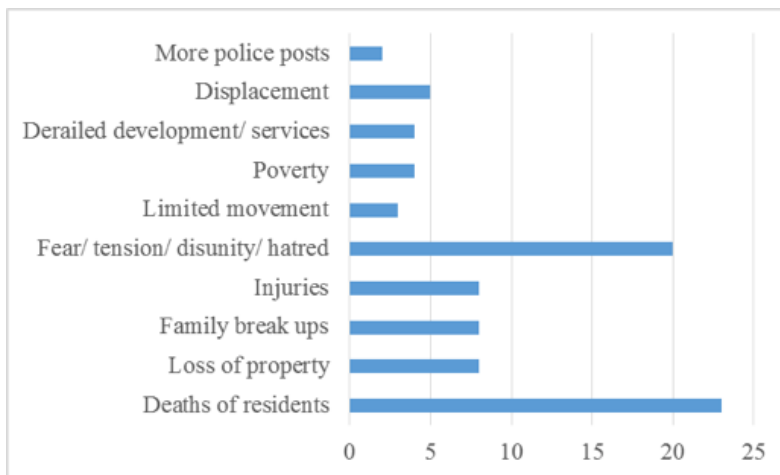
Other conflicts in Bungoma County include cases of wildlife conflict. These conflicts are associated with animals such as snakes, monkeys among others especially in the forested areas (Mt. Elgon region). Graph 6 below shows the sub-counties that are affected by cases of wildlife conflicts.

Graph 6: Sub-counties experiencing Human-wildlife Conflicts



Source: Field Survey, 2015

Graph 7: Effects of Conflicts in the County



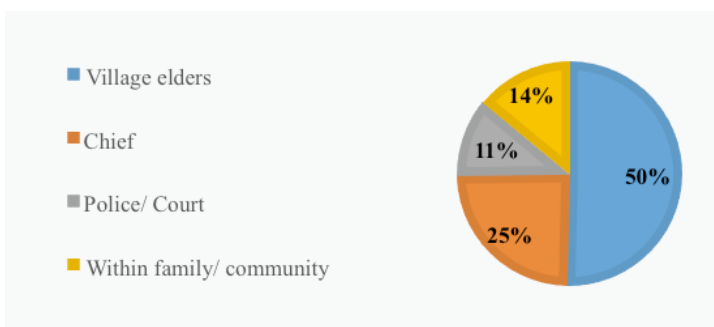
- The major negative effects of conflict in the county include fear/tension among the residents, deaths increased death rates, family breakups, loss of properties, displacement of residents and poverty among others.
- Positive effects of the conflicts include the development of more police stations to enhance security.

Source: Field Survey, 2015

3.5.3 Conflict resolution mechanisms

A number of conflict resolution mechanisms are adopted and applied within the County of Bungoma. Chart 7 below, represents the main mediums of conflict resolutions in Bungoma County.

Chart 6: Conflict resolution mechanisms



Source: Field survey, 2015

3.6 POTENTIAL OPPORTUNITIES AND CONSTRAINTS

Opportunity	Constraints
<ul style="list-style-type: none"> • Population projections to 2025 shows an increase from 1.6 million (2015) to 2.0 million (2025). A youthful population provides an opportunity for innovation and technology as well as ensures that there's an available workforce • In-migration into the County takes place at both the national and international levels (from other countries such as Uganda). This is an opportunity if explored can boost the growth of the economy and subsequent regional development. • Rich cultural heritage provides an opportunity to the county in cultural tourism and it also helps in passing down the culture and beliefs from generation to generation • The long life expectancy (avg. of 60) assures the county of higher working population who can pass knowledge from one generation to another 	<ul style="list-style-type: none"> • High population growth rate puts a lot of pressure on the available resources (especially land) and infrastructure • Lack of opportunities for young people e.g. skills and employment opportunities • The female population is higher than the male population. Thus the ratio is 95:100. However, women in most of the communities are not given a right to own land which is a major resource. • Conflicts in Bungoma County, are commonly based on land and domestic conflicts. These have adverse effects on the economy, as they cause death and disunity within the communities • Cultural Erosion has been witnessed especially due to the uptake of modernity. • Most of Bungoma County is rural, with agriculture being one of the major economic activities. The higher rural population indicates lower investment in the commercial and trading activities within the towns.

CHAPTER FOUR: LAND

4.1 OVERVIEW

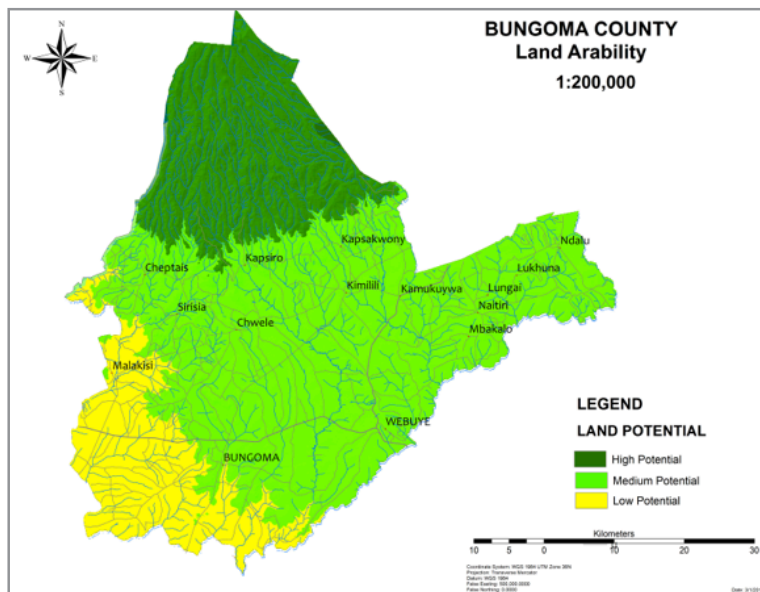
Land, sometimes referred to as dry land, is the solid surface of the earth that is not permanently covered by water, vast majority of human activity occurs in land areas that support agriculture, habitat and natural resources. Land is Bungoma's most valuable asset with an overwhelming proportion of people living in the rural areas and earning their livelihood from agriculture. Land use involves the management and modification of natural environment into built environment such as settlement and semi natural habitats such as arable fields, pastures and managed woods. It is defined as the total arrangements, activities and inputs that people undertake in certain land cover type. Understanding land tenure and land use which are closely related is crucial to land use in income production and generation.

4.2 LAND AS A NATURAL RESOURCE

4.2.1 Land Resource Characteristics

The total size of land in the county is 3032.2 square kilometres. Majority of the land is used for agriculture, with 2,880.78 Km² of arable land mainly used for crop farming and livestock production. The county's land can be broadly categorized into three broad categories based on their potential as shown in the map below:

Map 15: Land Potential Map

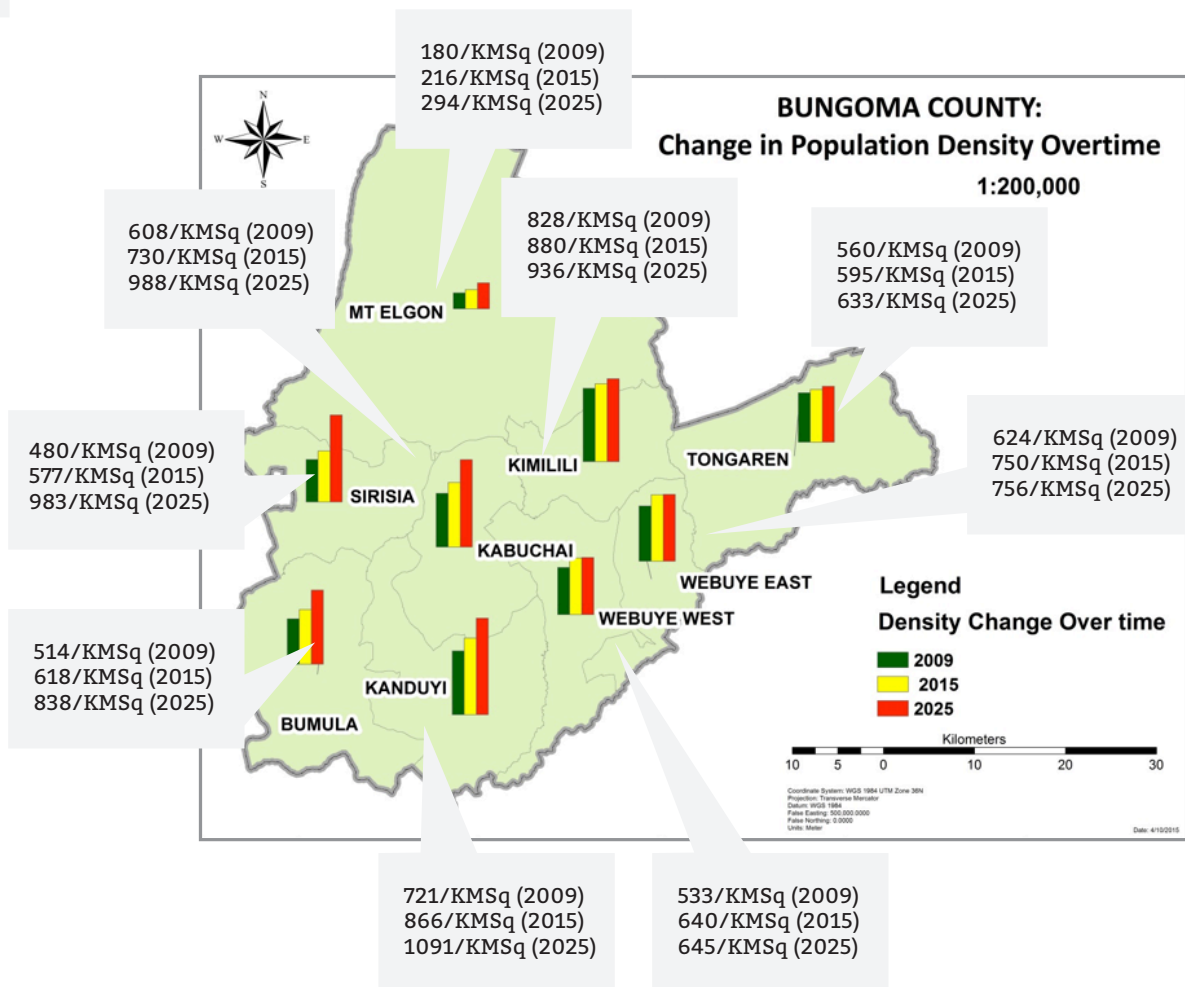


Prepared by: Two Ems Associates (Adapted from the Farm Management Handbook), 2015.

4.2.2 Land Capacity Analysis

Land use capacity enables the authority to track the ability of a tract of land to provide a surplus of returns or satisfactions above its costs of utilization. Tracts may be highly productive relative to their utilization costs because of a favorable location with respect to markets, transportation and communication facilities. Tracts may also be productive primarily because of resource characteristics such as soil fertility, climatic conditions, or the presence of wood and water. The capacity of land over time in Bungoma is largely reducing due to increasing population pressure as illustrated in the map below:

Map 16: Land Potential Map



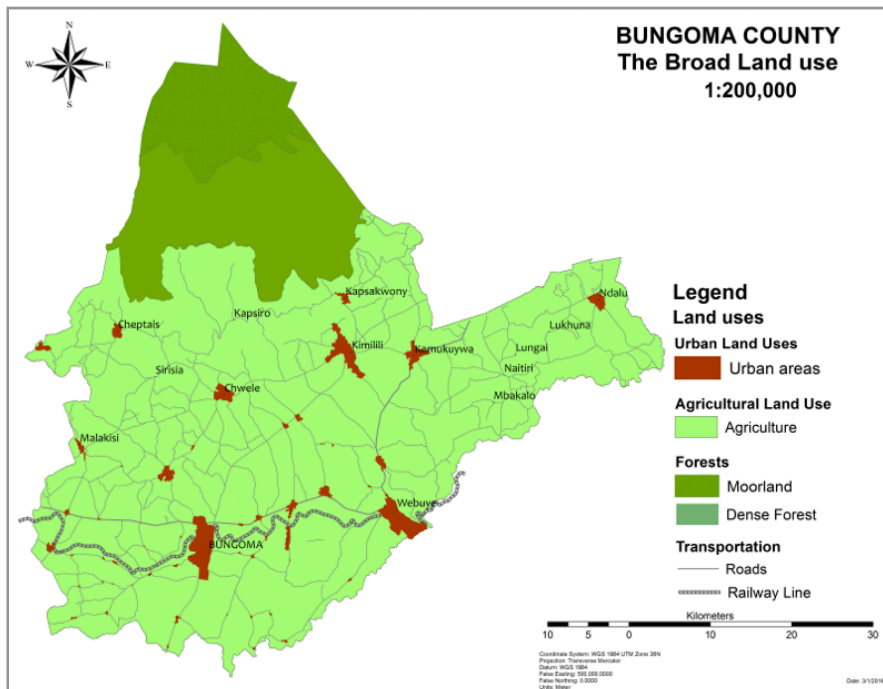
Prepared by: Two Ems Associates, 2015.

4.3 LAND USE

4.3.1 Existing Land-Use Structure

Land in Bungoma is being used to meet a multiplicity and variety of human needs and to serve numerous, diverse purposes. The broad land use within Bungoma County is divided into the following major categories, which are the urban land uses, forest land use, transportation and the rural agricultural lands.

Map 37: Existing land use structure



Prepared by: Two Ems Associates, 2016.

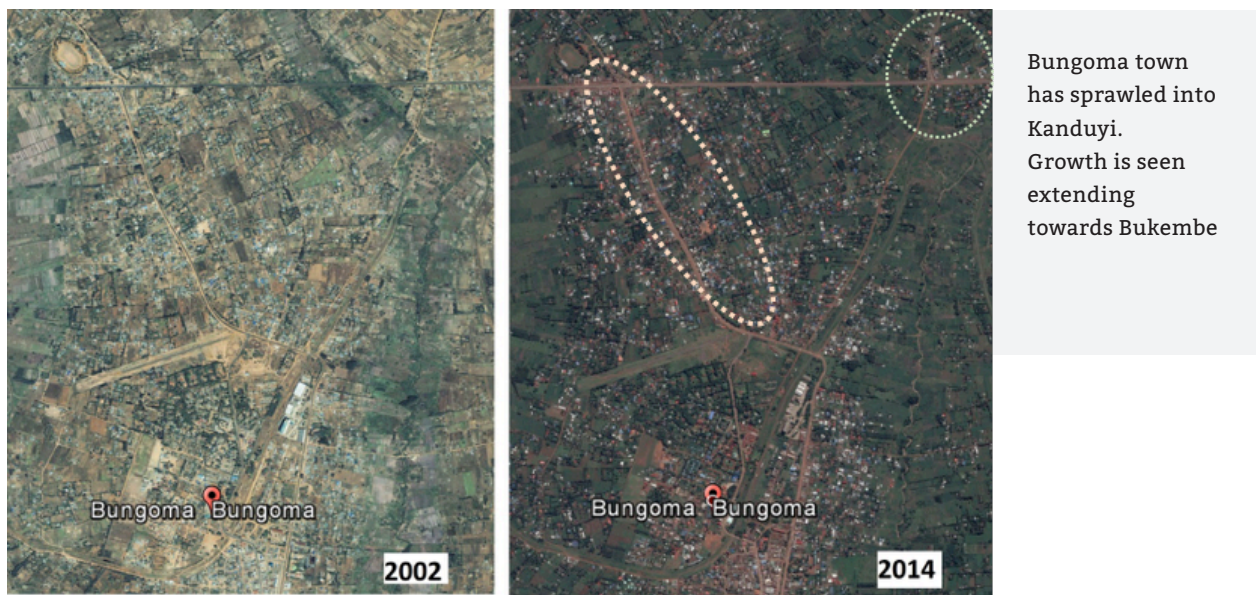
4.3.3 Land Use Trends Analysis

Map 39: Forest Land-use Changes

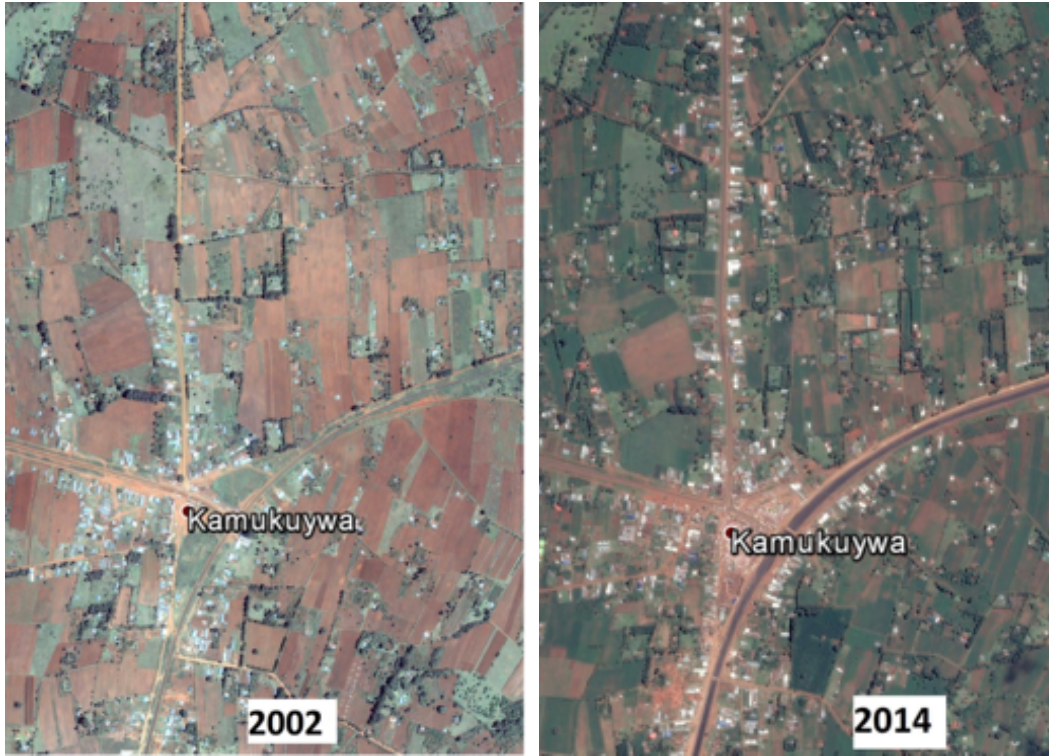


There will be further forest degradation by 4%:

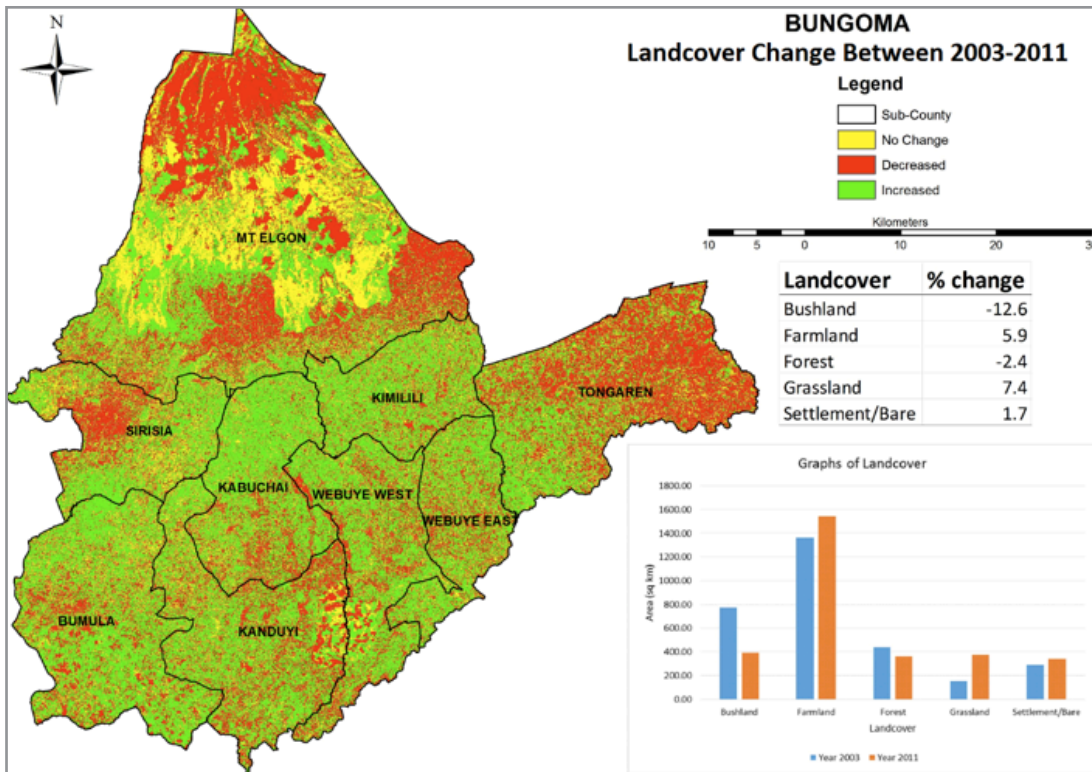
Map 41: Urbanization Trend



Kamukuywa



Map 42: Resultant Land Cover Change

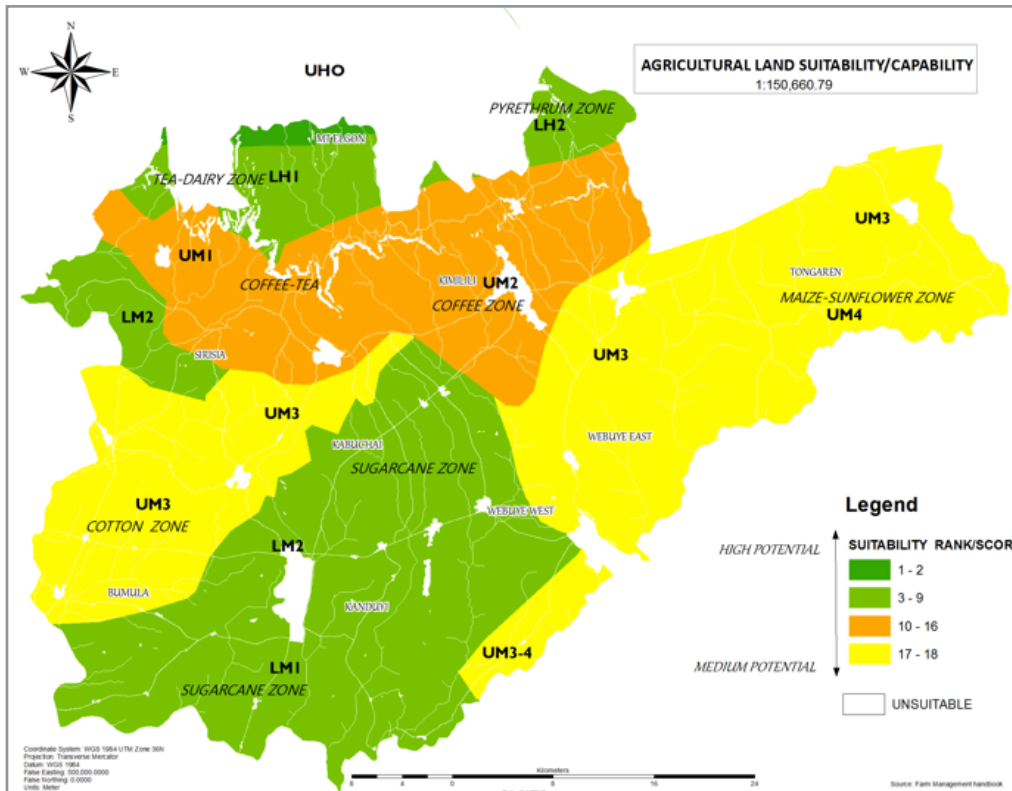


Map 31: Resultant Land Cover Change

4.3.3 Land-Use Suitability Analysis

The land suitable for agriculture is that not currently occupied by urban settlements, transportation networks and environmentally fragile sites (steep slopes, riparian reserves and wetlands). The remaining land has been ranked from the most prime (1-2) up to the least prime based on combined agro-ecological zones analysis, as depicted on the map below:

Map 43: Land Suitability Analysis for Agriculture



Prepared by: Two Ems Associates, 2015

4.4 LAND TENURE SYSTEMS

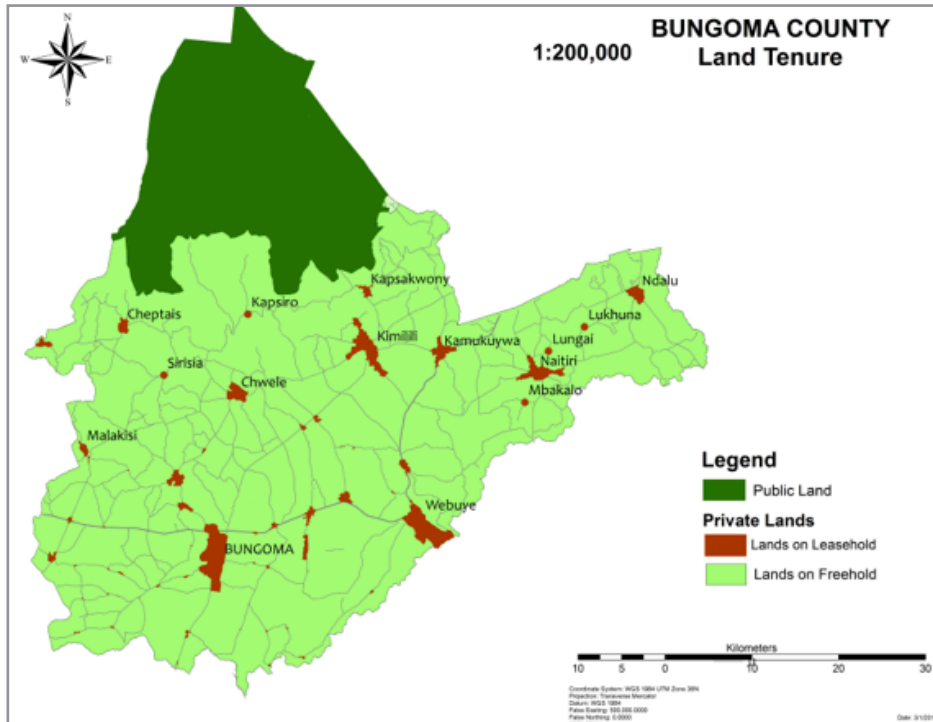
4.4.1 Overview

Land tenure is an important part of social, political and economic structures. It is multi-dimensional, bringing into play social, technical, economic, institutional, legal and political aspects that are often ignored but must be taken into account. Land rights are often a vital element when rural households balance their capabilities and assets, and determine their resulting strategies to cope with their daily production and food security. Land tenure is simply the legal right to hold property or land. It also refers to the legal and contractual arrangements in the use and control over land resources. Land tenure is very important and highly sought after because it is a source of food and shelter. It provides security for the future. Land tenure refers to the ownership and management of land.

4.4.2 Existing Land Tenure systems

The present land tenure arrangements in Bungoma County, have gradually evolved from the pre-colonial traditional communal land ownership to private and public land ownership. At the time of independence the whole county was Crown Land reserved for the ‘white farmers’. At independence the ownership went to the Government of Kenya which has allocated or sold to individuals and institutions. Kenyan constitution recognizes three types of ownership of land ownership; Public, Community and Private.

Map 44: Land tenure map



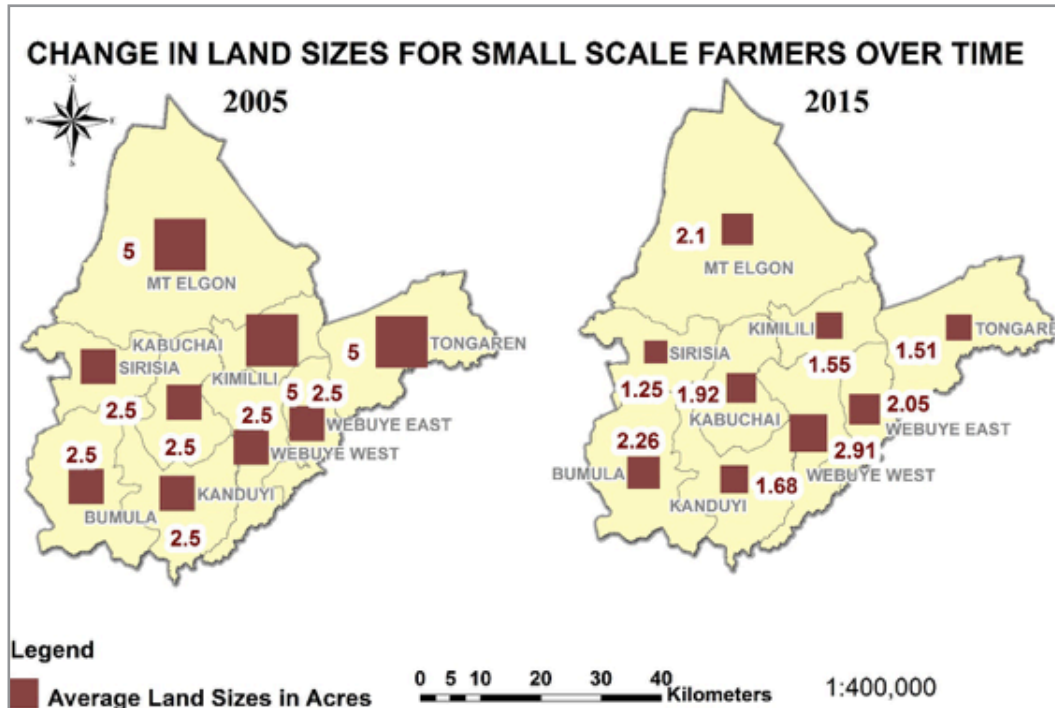
Prepared by: Two Ems Associates, 2015

4.4.2.1 Private Lands

The privately owned land was previously owned by the government but has now been allocated or sold to individuals and institutions. There two ownership systems under private land tenure which are; freehold and leasehold. Freehold land ownership is most prevalent in the rural agricultural lands while lands held under leasehold are prevalent within town areas of the county with approved Physical development plans.

The implication of freehold land ownership is that owners have full rights on the use of their land with minimal government control and this has unfortunately resulted in gradual land fragmentation over the years. At the same time, a number of people own large tracts of land and property which are not utilized optimally. The rapid growth of population, culture of sub-dividing inherited lands and urban sprawl pressure has led to large portions of land in high potential areas of Bungoma County to be excessively fragmented/ subdivided into uneconomic parcels as illustrated in the map below:

Map 45: Change of Land sizes



Prepared by: Farm Management Handbook, 2005 & 2EMS HH survey March 2015

Private land within the county has largely been acquired through inheritance (62%) and purchase (32%). Only 2% of private land owners acquired it through allocation from government or by leasing.

In terms of private land ownership documentation, majority of land owners (66%) have no ownership documents with only 34% having title deeds (KIBHS 20016/2007). This has a big implication on the ability of land owners to access credit as they lack collateral thus impacting on the economic development of the county as a whole.

4.4.2.2 Public Lands

Public land in Bungoma County refers to land not alienated by the Kenyan government, used or occupied by a State organs and institutions, which no individual or community ownership can be established, minerals, Mt. Elgon forest, and game reserves. Other lands in Bungoma that fall into this category are water catchment areas, national reserves, roads, airstrips, railway, rivers, and other water bodies and the exclusive economic zone. Any land not classified as private or community land also fall in this category. All public lands in Bungoma are held in trust for the people of Bungoma by county government and administered on their behalf by the National Land Commission. Other pieces of land will be held by the national government in trust for the people and administered on their behalf by the National Land commission.

Public land in Bungoma has faced challenges of encroachment and grabbing, particularly in the urban areas. A number of land grabbing cases in the county have been reported to the National Land Commission and are currently under investigation in towns such as Bungoma, Webuye, Kimilili, Kapsokwony, Sirisia Town and Malakisi. As a result, land for development of public facilities is dwindling forcing government agencies to purchase tracts of land whenever such facilities need to be developed. There is therefore a need to completely inventorize and periodically assess the state of public land within the whole county.

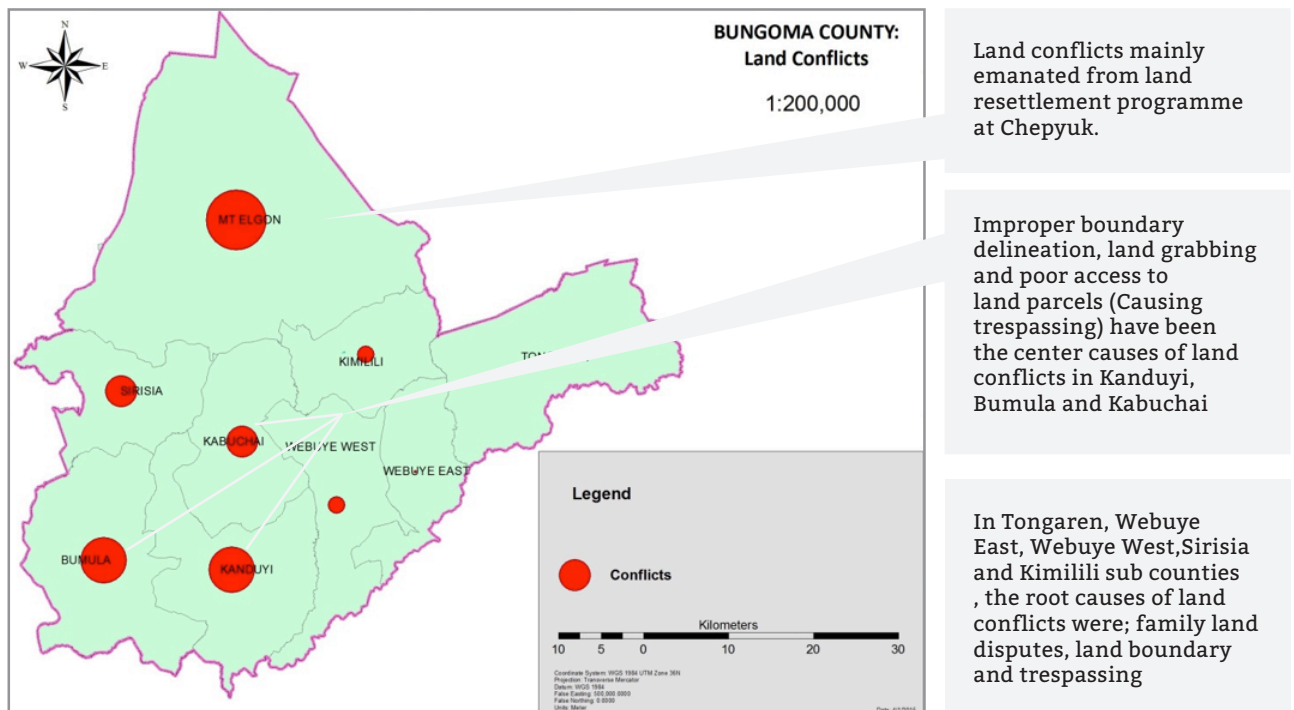
4.5 LAND CONFLICT

A number of regions within Bungoma, the land ownership and land use rights are often in conflict resulting into land conflicts. These land conflicts have far reaching negative effects on the certainty of land markets, tenure and food security, economic production and reduction of poverty. Often, the land conflicts lead to; civil strife, loss of lives, population displacement, destruction of property and international humanitarian crisis.

The major factors influencing land related conflicts in various areas in Bungoma County are:

1. The role of geographical boundaries,
2. The effects of land tenure system,
3. The influence of political environment
4. The role of historical evictions on land related conflicts in Bungoma County.

Map 46: Land Conflicts in different Sub-Countries



Map 37: Land Conflicts in different Sub-Countries

4.6 POTENTIALS, OPPORTUNITIES AND CONSTRAINTS

	POTENTIAL/ OPPORTUNITIES:	CONSTRAINTS:
Land and Land Capacity:	The land is largely arable for agriculture.	There is however declining land productivity due to excessive subdivision and land degradation due to pressure from growing population. Land policies on sub-division have largely been weak and not enforced.
Land Use:	All the lands in Bungoma are highly arable	Urban sprawl into rich productive agricultural lands Fragmentation/sub-dividing of farmland and small land size due to population pressure affecting land management and make them uneconomic parcels. Land conflicts limits effective land uses
Land Tenure:	Private land ownership in most land parcels encourages maximum investment in utilization of land resources. Gender equity right of tenure will tremendously increase productivity of lands	The lack of title deeds limits developments on land and access to credit. Succession issues often bring conflict.

CHAPTER FIVE: NATURAL RESOURCE BASE

This chapter gives the background information of the county, the physical environment, water resources, energy resources, land as a resource, wildlife and tourism, mineral resources, environment and climate change and the emerging issues of the physical environment.

The physiographic dynamics of any region are crucial for analysis as they form the canvas on which planning occurs, acting as either physical constraints or opportunities for development. In fact, these physiographic dynamics are a precursor to all other spheres of county development such as economy, human settlements, infrastructure and land use.

5.1 TOPOGRAPHY AND SLOPE ANALYSIS

5.1.1 Overview:

Topography and slope analysis is important in determining the spatial distribution of people in an area as well as the settlement patterns. Landforms features such as mountains and hills determine the topography of an area influencing the type of development and the economic activities to be undertaken.

Settlement patterns within a region are also determined by topography and the slope elevation. High and steep slopes are a major hindrance to settlement as most people tend to settle in areas where the land is gently sloping. The main land feature in the county is Mt. Elgon which slopes gently towards the south and central parts. In Mt Elgon areas, the topography rises abruptly in an undulating characteristics to form cliffs which rise up to 70 meters in height and are dissected by deep river gorges with frequent water falls.

5.1.2 Altitude:

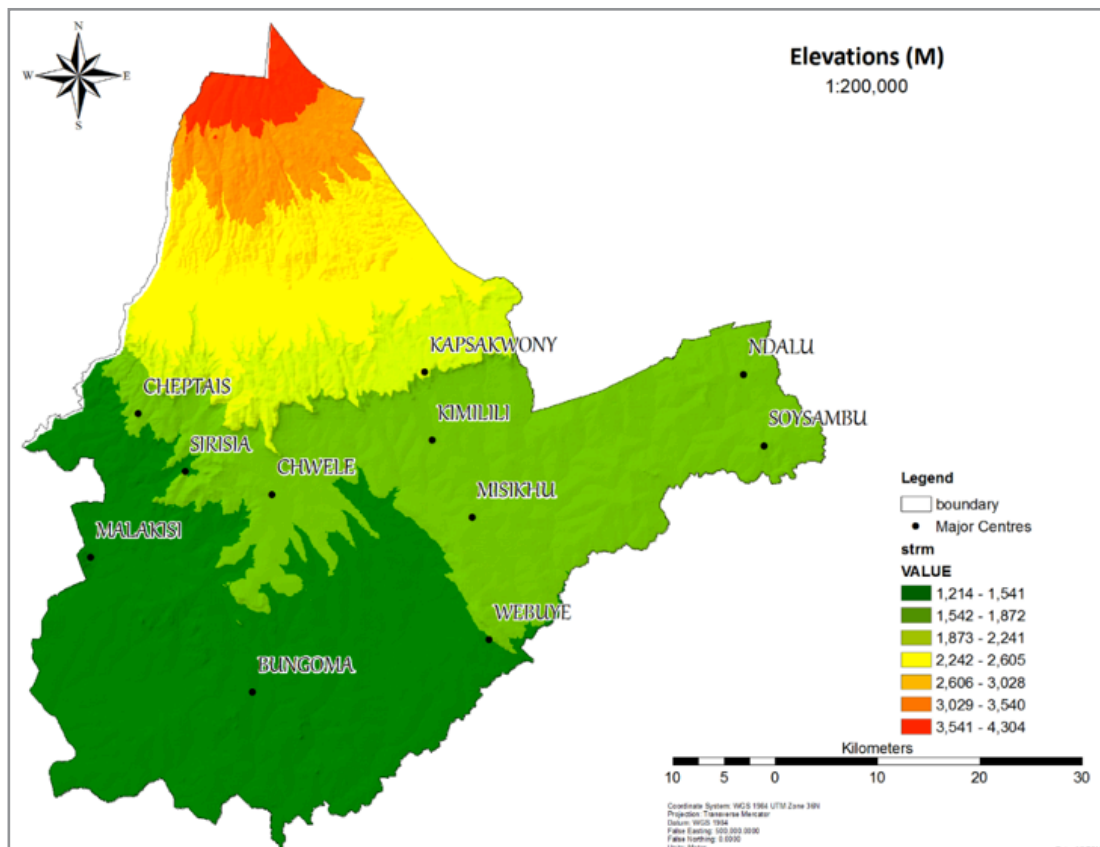
Altitude is the height above sea level. The county has a gently sloping topography with Mt. Elgon being the highest point. The land in Bungoma County generally slopes from the peak of Mt. Elgon from the North at an altitude of over 4321 metres above sea level. To the lower lying south and south west with an average altitude of 1200 metres, hence, making the altitude range of the county to be between 4321m-1200m above sea level.

Altitude within the agricultural areas range from about 1300 m (thermal zone 3; 20.0-22.5° Celsius) in the southern part of Bungoma to about 3500 m (thermal zone 8; 5.0-10.0° Celsius) on the slopes of Mt. Elgon in the North of the county.

The county altitudes can be categorised into;

- Upper Middle-Level Uplands (undulating to rolling; slopes between 5 and 16%; altitudes between 1650 and 2650 m)
- Lower Middle-Level Uplands (gently undulating to undulating; slopes between 2 and 8%; altitudes between 1200 and 2100 m)
- Lower-Level Uplands (very undulating to undulating; slopes between 2 and 8%; altitudes between 1200 and 1900 m)

Map 7: Slope analysis map.



Region A.

Mt.Elgon slopes receives the highest rainfall and coolest temperatures favoring coffee, tea and dairy farming.

Region B.

Gentle slopes that favor tobacco growing

Region c.

The region is favorable for sugarcane, maize, beans and other crops that do well in minimal rainfall and temperature range.

Prepared by: Two Ems Associates (Adapted from Natural Earth), 2015.

5.1.3 Emerging Issues (Topography):

- The highest point in the county, Mount Elgon forms one of Kenya's five water towers.
- The topography is scenic and is home to scenic tourist attraction sites.
- Wind energy can be tapped in the hills and mountain-top.
- The steep terrain in the highland areas of the county constrains infrastructural expansion.
- There is soil erosion during heavy rains from Mount Elgon slopes and other hilly areas caused by human encroachment and poor farming practices on these fragile sites.
- Low-lying areas such as Bumula experience flooding from run-off from the hilly areas.

5.2 CLIMATE

5.2.1 Overview:

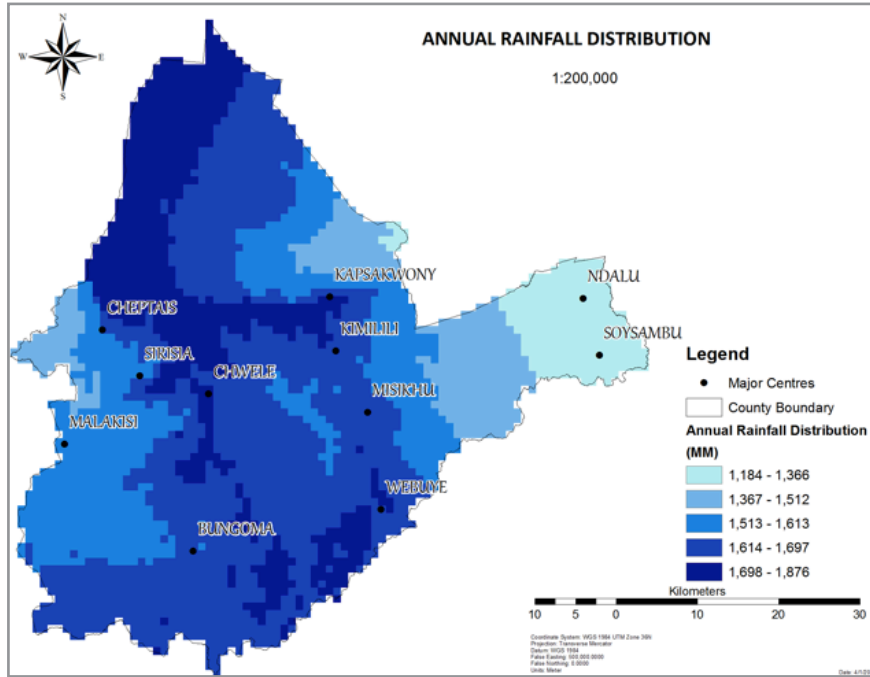
Climatic observations are a necessary foundation, where the knowledge on which the provision of climate services and climate forecasting and the knowledge about agricultural timing for crops is built upon. Climatic analysis also helps in climate risk management and an enhanced ability to adapt to climate change.

The northward and southward relative movement of the sun controls Kenya's climate and the whole of the Eastern Africa region. Kenya's climatic conditions majorly rainfall depicts very strong seasonality in harmony with the latitudinal migration of the Inter-Tropical Convergence Zone (ITCZ). The county mostly experiences bimodal and tri-modal rainfall distributions, with rainfall peaks generally occurring in April/May (long rains) and October/November (short rains) for bimodal rainfall regimes, and in July/August (mostly in western Kenya) for tri-modal rainfall regimes. In most areas, the long rains account for over 50% of the annual totals in the country. Bungoma County receives a bimodal type of rainfall with warm and wet climatic condition characterising tropical climate experienced in most parts of the county.

5.2.1 Rainfall:

There are two rainy seasons; short rains and long rains. The county experiences long rains in the months of March, April, May, and June often occurring in the afternoon hours and evening hours of the day, while the short rains are experienced in the months of October, November and December. The annual average rainfall of the county is between 1200mm -1800 mm.

Map 8: Annual rainfall distribution of Bungoma County

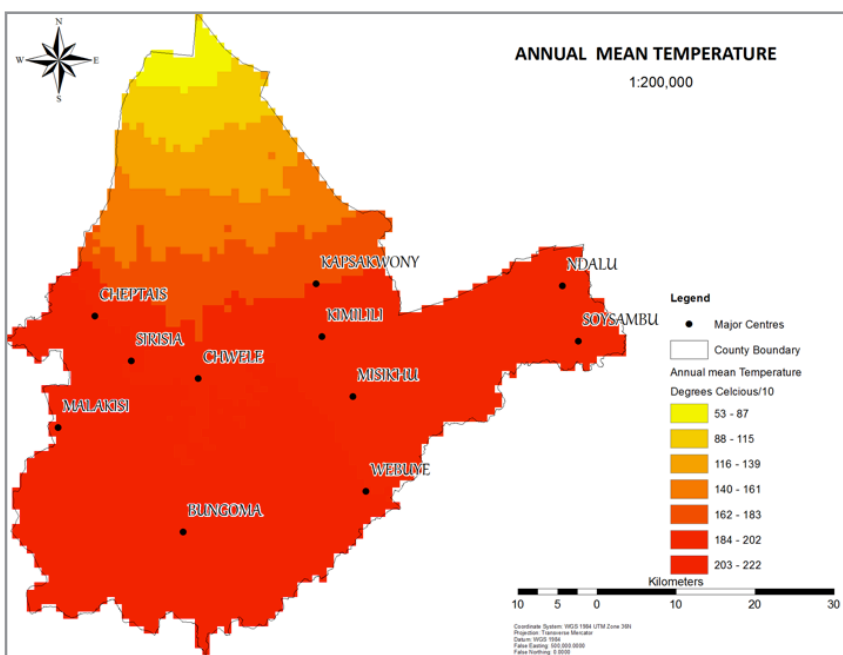


Prepared by: Two Ems Associates (Adapted from UNEP Geodata), 2015.

5.2.2 Temperature:

The county experiences a maximum temperature of 22-30 degrees centigrade and a minimum temperature of 15-20 degrees centigrade hence the average is about 23 degree centigrade. July and August are the coldest period of the year in the county. The hottest months in the county are in February and March paving way for the heavy and long rainy season.

Map 9: Annual mean temperature of Bungoma County.



Prepared by: Two Ems Associates (Adapted from UNEP Geodata), 2015.

5.2.3 Evapo-Transpiration:

Evapo-transpiration is relatively low within the agricultural zones and increases from less than 1 400 mm (in LH 1) to 1 800 mm (in UM 1/UM 2). In the southern part of the county only, potential evapo-transpiration may reach more than 1 800 mm per year.

5.2.4 Emerging Issues (Climate):

- The county experiences high rainfalls favoring agricultural production.
- There are climatic opportunities for green energy tapping (solar and wind energy).
- High rainfall has contributed to flooding and soil erosion.
- Climate change over the recent years has resulted in unpredictable weather patterns impacting agricultural practices negatively.

5.3 GEOLOGY, SOILS AND MINERALS ANALYSIS

5.3.1 Overview:

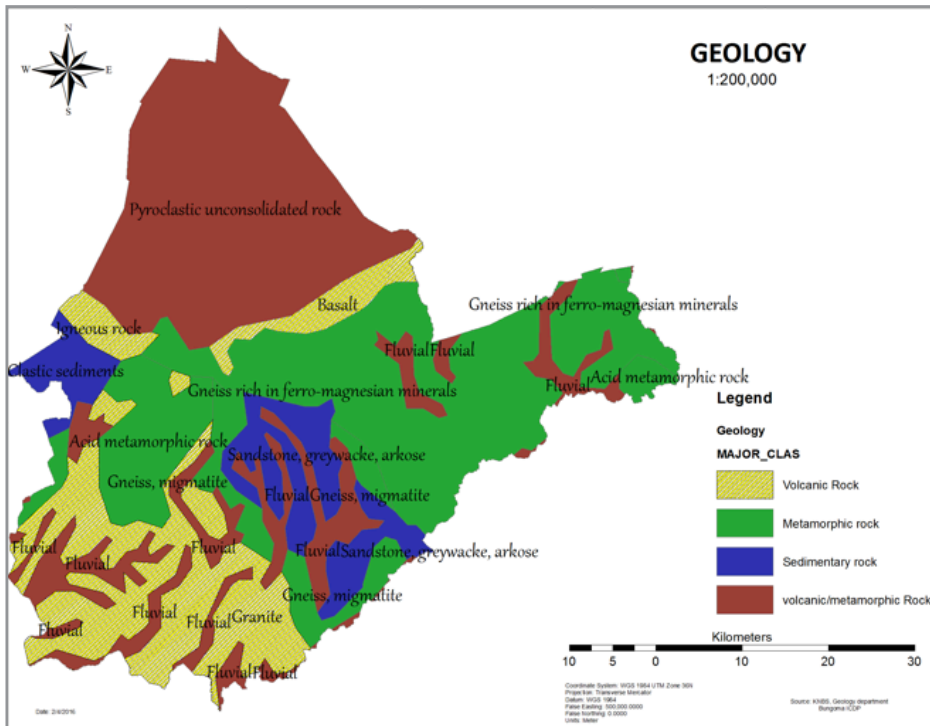
Geological knowledge of an area is important in determining soil types and the probability of aquifers and the mineral composition. Planning for the future through geological analysis is also important, in order to place management and prediction of geological hazards and avoidance of environmental problems in the future. In recent year's human activities such as construction of buildings, digging of communication links and internet networks, construction of dams, underground excavations for minerals has greatly affected the geology in most areas. These activities have irreversible effects on the basement rocks hence, causing pollution of the aquifers and influences land use formations.

5.3.2 Rock Characteristics of County:

The county basement system is majorly underlined by granite rocks. The geology of the northern part of Bungoma County is majorly attributed to the volcanic activities during the formation of the Mt Elgon most of the underlying rocks are volcanic rocks. The geological characteristics county is entirely determined by geological formation;

- Volcanic igneous rocks.
- Quaternary sediments.

Map 10: Geological structure of the County



Importance of rocks.

Volcanic rocks.

- They hold Substantial underground water.
- Building rocks

Sedimentary rocks.

- Fertile soils for agriculture.

Metamorphic rocks.

Rocks are used for building materials.

Prepared by: Two Ems Associates (Adapted from Geology Department, KNBS, Bungoma CIDP), 2015.

Rock outcrops scattered within the county are scenic in nature and hold potential for tourism.

Plate 2: Sang’alo Rocks



Source; Field Survey 2015.

5.3.3 Soil Characteristics of County:

The soil distribution in the county is greatly influenced by the basement rock system. The county soil distribution is complex and is influenced by volcanic activities of Mt. Elgon, the slope variation in the county and heavily on the geology of the county.

Bungoma County has one of the most fertile and the richest soils in the country and it is very suitable for agriculture. The County has good physical and varying soil type's properties, with inherently fertile deep rich and sols and nitisols towards the slopes of Mt. Elgon which are well-developed soils due to weathering process. The soils in this area ranges from reddish-brown -dark to brown in colour, with the andosols mostly being ashy soils by characterised by high organic matter with a mixture of black top.

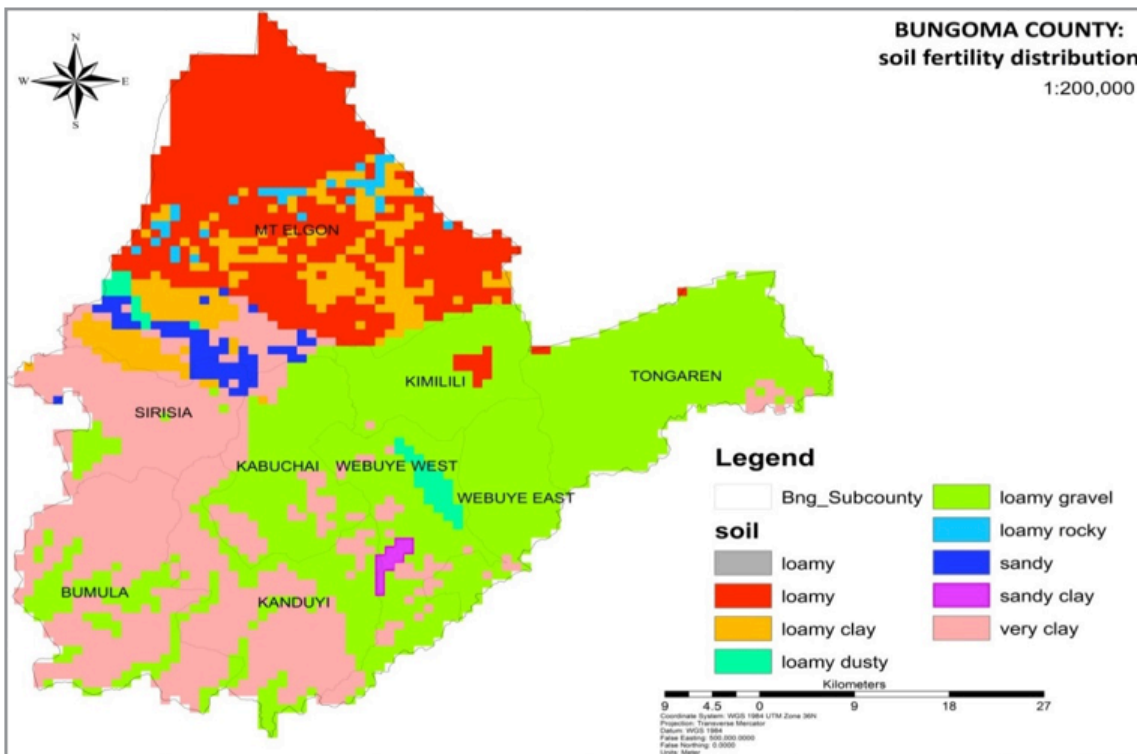
The western part of the county mostly in the former Bungoma district has acrisols, while the central part of the county is predominantly occupied by feralsols type of soil. The eastern part of the county comprises of acrisols and feralsols.

Bokoli and Chwele areas where sugarcane in mostly grown are characterised by well drained, deep to very deep, dark reddish brown, friable clay, with humid top soil in some places; in places shallow to moderately deep and rocky; chromo-luvic phaeozems, partly lithic and rocky phase, with mollic nitisols are in.

In areas around Bumula, well drained, shallow to moderately deep, dark yellowish brown to reddish brown, friable, stony, sandy clay loam to gravely sandy clay is the major soil type. In areas characterised with an acid humid topsoil or very shallow and rocky; ferralic, dystric and humic cambisols and orthic acrisols are predominant with lithosols.

The soil type in various areas around the county differ from soil colour and leaching level with areas around Kimilili, Cheptais and Sirisia the soil type being characterised by reddish brown friable loam soil that is very fertile and favours the growth of maize.

Map 50: Soil fertility distribution of Bungoma County



Map 40: Soil fertility distribution of Bungoma County

5.3.4 Mineral Resource Characteristics in County:

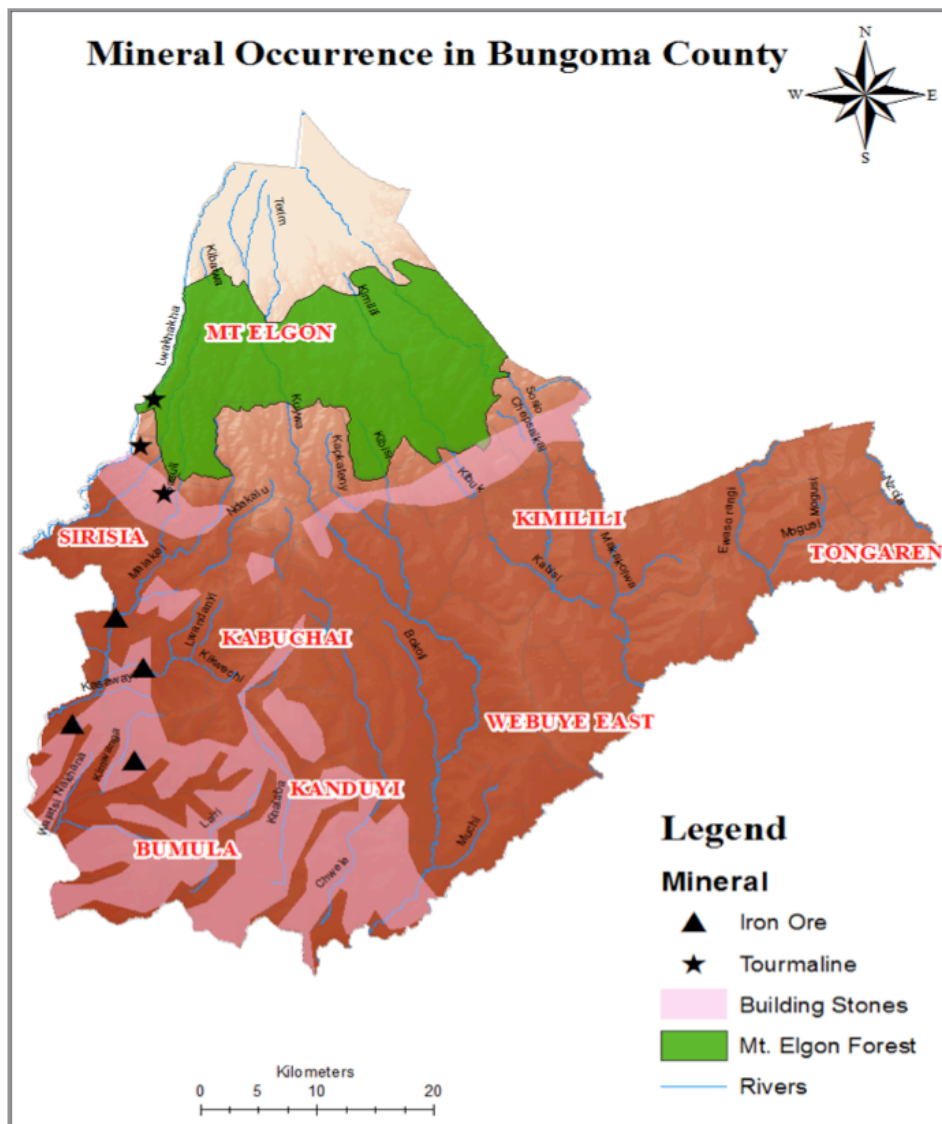
5.3.3.1 Overview:

Minerals are one of the major sources of revenue and income to a particular country. The presence of minerals is also a major source of income mostly to those who excavate the earth surface. Geological composition and basement system of an area determines the presence of minerals. In Bungoma County there are no major mineral resources but sand harvesting in the county and quarrying activities for construction stones is undertaken as a mineral activity.

5.3.3.2 Mineral Deposits in County:

The main mineral deposits within the county are as illustrated in the table and maps below:

Map 11: Mineral Deposits in County



Prepared by: Two Ems Associates (adopted from the Kenya Geology Maps), (2015)

Table 9: Mineral Deposits in County

<p>Sand: Sand deposits are always present along river banks. Sand harvesting in the county is undertaken as a mineral activity. Most of the sand deposits are present along the rivers banks in the county. Currently, sand harvesting happens a lot along R. Nzoia. The activity generates revenue to the county government and is also a source of employment to the people.</p>	<p>Various streams/ rivers around Bungoma County</p>	<p>Suitable for building</p>
<p>Crushed Stones/ Building Stones Quarrying is also one of the mineral activities in the county, with building stones as the main mineral mined. The county earns revenue through excavation of building stones and it's also a source of employment to those involved.</p>	<p>Various parts of the county</p>	<p>Construction of roads and buildings</p>
<p>Tourmaline (Shorl)</p>	<p>Malakisi-Traces)</p>	<p>Used in jewellery as a black gemstone, and polished or tumbled as a minor gemstone</p>
<p>Iron Ore</p>	<p>Mt. Elgon Region</p>	<p>Main uses of iron ores are the production of iron and steel. Processed iron to form castings, wire, rod, sheet, etc. for the engineering and building trades</p>

Source: Two Ems Associates (2015)

5.3.5 Emerging Issues (Geology, Soils and Minerals):

- The soils in the county are rich for agricultural activities.
- The basement rocks have strong water holding potential and are a possible source of construction materials.
- Rock outcrops provides scenic landscapes and are potential tourist attraction sites.
- Erosion of soils has led to a continued loss of fertility.
- In certain areas, the rock outcrops are impediments to extent of development.
- There is limited knowledge on the financial viability of mineral exploitation in the county.

5.4 HYDROLOGY, DRAINAGE AND WATER RESOURCES

5.4.1 Overview:

Hydrology is the study of the movement, distribution, and quality of water on Earth and other planets, including the hydrologic cycle, water resources and environmental watershed sustainability. The analysis of hydrological resources is important as the adequacy or deficiency of water resources can serve either as an impediment or opportunity to development.

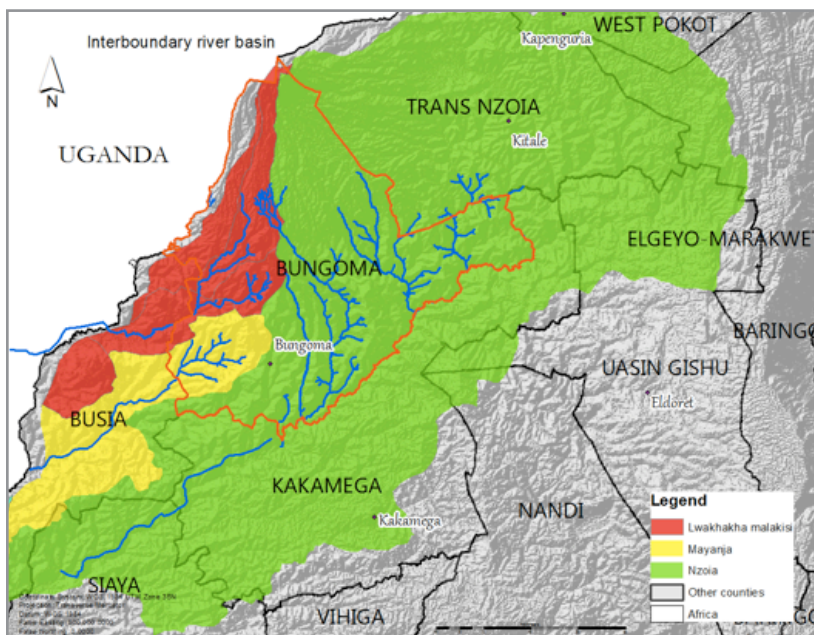
5.4.2 Water Catchment Areas/ Drainage Basins and the Trans-boundary Dynamics:

A catchment basin refers to a reservoir or basin developed for flood control or water management from livestock and/or wildlife. A drainage basin refers to an area in which surface runoff collects and from which it is carried by a drainage system, as a river and its tributaries. Also known as catchment area, drainage area, feeding ground, gathering ground, hydrographic basin (McGraw-Hill, 2002)

The county lies in the Lake Victoria north catchment basin and is surrounded by Mt. Elgon (4,321 m) in the north and Cherengani Hills in the east. The catchment borders Uganda in the west and Lake Victoria in the southwest covering a total area of 19,012 km², which is 3.3% of area of Kenya. (NWMP Progress Report 2012.) The catchment basin has river Nzoia, Malakisi, and Sosio rivers as the only rivers within the county. Nzoia River is a representative river with a drainage area of 12,853 km² that covers about 2/3 of the Lake Victoria catchment basin.

Bungoma falls under the North Lake Victoria drainage basin. The gently sloping terrain from Mt. Elgon to Lake Victoria helps in the drainage of the county since most of the rivers from the mountain drain into the lake. The gently sloping terrain of the county and the rivers also help in storm water drainage during heavy rains.

Map 12: Trans-boundary Nature of River Basins



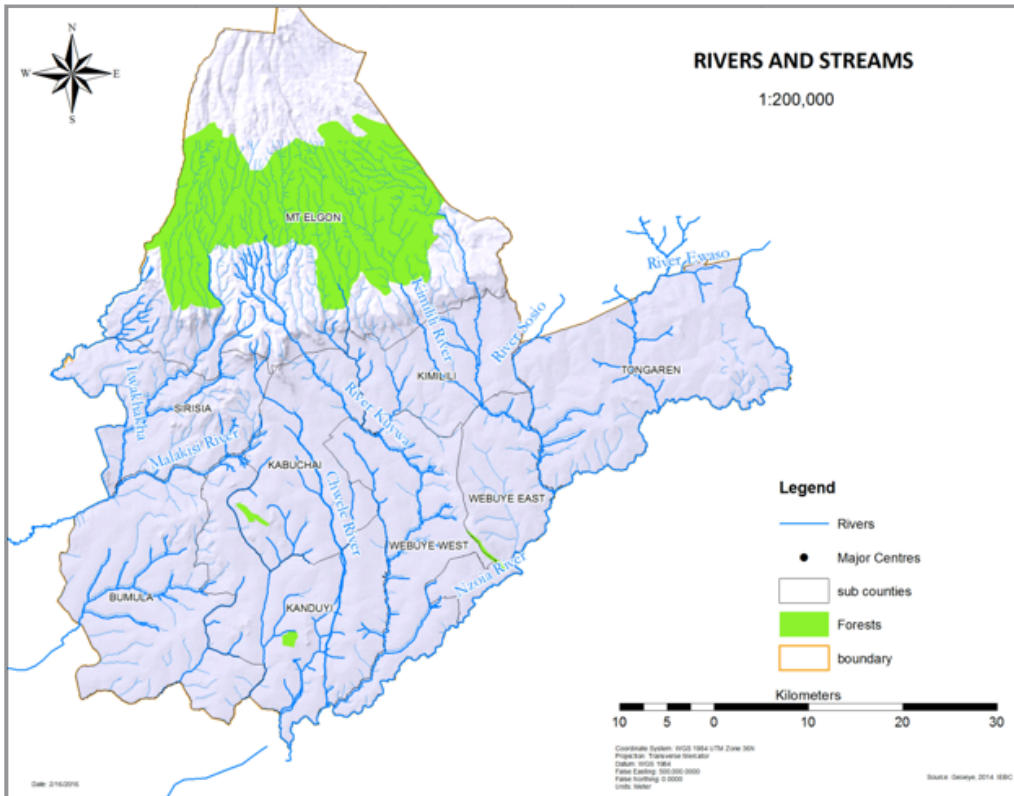
There are three crucial rivers in the county that are trans-boundary, Rivers Nzoia, Lwakhakha and Mayanja*. River Nzoia basin is a shared resource between Bungoma, Transnzoia, West Pokot, Elgeyo Marakwet, Kakamega and Siaya Counties. River Lwakhakha falls in a basin shared by both Kenya and Uganda. Within Kenya itself, River Lwakhakha is a shared resource between two counties of Bungoma and Busia and Uganda.

Prepared by: Two Ems Associates, 2015

5.4.3 Surface Water Resources:

The county's hydrology and water resources is characterised mostly by rivers, which originate from Mt. Elgon.

Map 13: Rivers in the county.



Emerging issues.

- Human encroachment into Mt. Elgon water catchment area has led to reduction in water volumes of the rivers that feed into Lake Victoria
- Pollution of the rivers that are in North Lake Victoria basin has led to pollution of the water in the lake and River Nile that is a major resource to most countries like Egypt.
- There is need for implementation of the policies put in place to safeguard protection of water catchment areas.

Prepared by: Two Ems Associates (Adapted from GeoEye 2014 and IEBC), 2015.

The hydrology of Bungoma is generally affected by the terrain of the land (Mt. Elgon and Cherenganyi hills), which affects the flow of water within the rivers. The rivers in the county include; Kamukuywa, Sosio, Kimilili, Kibisi, Kuywa, Khalaba, Malakisi, and Lwakhakha.

Plate 3: River Nzoia



Source: Field survey, 2015

River resources are also host to scenic resources such as Nabuyole and Malakisi waterfalls.

Plate 4: Nabuyole falls.

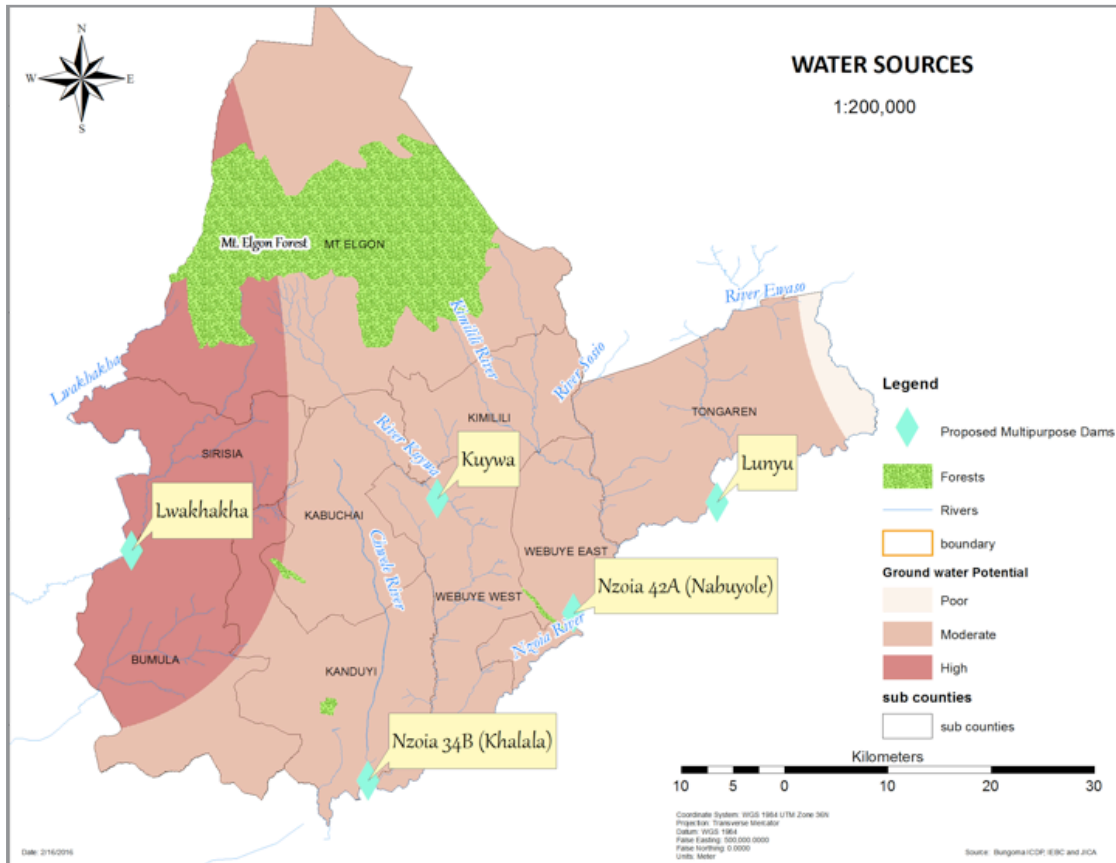


Source; Field survey 2015.

5.4.4 Underground Water Resources:

Underground water forms part of the major sources of water used in the county in the form of shallow wells and springs

Map 14: Underground water potential areas



Prepared by: Two Ems Associates, 2015.

The county has a potential of tapping underground water, which is in abundance mostly along the northern part of the county.

5.4.5 Water Resources Potential:

Bungoma County has many water resources; some of the potential water sources that can be exploited in the county are:

- Rain water harvest – Rain water/storm water can be harvested for irrigation and for domestic uses at the household level. Through proper harvesting of rain water by use of roof garters, the people can use the water for drinking and other domestic purposes.
- Protected springs – GIS mapping out of the springs and ensuring their protection would save the county a lot of money since it does not require any water treatment and it is readily available in most parts of the county.
- Construction of dams- The construction of dams is very effective in promoting water storage mostly during the heavy rains.
- Underground water resources- The geology of Bungoma County comprises of metamorphic of migmatitic granodiorites, biotite granite and granodiorites with minor intrusion of epidiorite and meta- dolerite all overlain by thick layers of clay soil. The soil retains water for an extended period of time after the rains and this partly recharges aquifers in the area.

5.4.6 Water Resources Development Projects in County:

The county government of Bungoma has undertaken the initiative to oversee various on-going water projects in the county. This is following the state of the main rivers in the County. The on-going water projects that are being undertaken by the county consist of:

1. Protection of springs- The County Government has commissioned the protection of ten springs per every ward in the county. Examples of the wards include; Khisa, Fedha, Songo, Kachenga, Anona etc.
2. Roof Catchment- the County Government has found this technique will be helpful in meeting water demand. The project is ongoing in Cardinal Otunga Girls School, Maeni epi Camp (Kimilili) among other places.
3. Borehole drilling- The County Government is drilling a borehole in Chekulo Secondary School in Luuya/Bwake.

Table 10: Proposed dams in the county

Name of dam.	Total storage volume for domestic use	Purpose.
Nzoia Dam at 34B site (Khalala)	1	Hydropower and flood control.
Nzoia Dam at 42A site (Nabuyole)	1	Hydropower and flood control.
Nzoia Dam (at Lunyu)	1	Multipurpose

Source: JICA Study Team 2012 report.

5.4.7 Emerging Issues (Hydrology and Drainage):

- There is a diversity of water sources (both surface and ground water).
- Water resources provide opportunities for hydropower generation, irrigation and fish-farming.
- There is encroachment of riparian reserves and unchecked sand-harvesting endangering water resources.
- There is pollution of the rivers by human activities.
- Destruction of water towers threatens the sustainability of the county's water resources into the future.
- The trans-boundary nature of water resource catchment areas makes water resources planning and development a complex affair.

5.6 VEGETATION CHARACTERISTICS

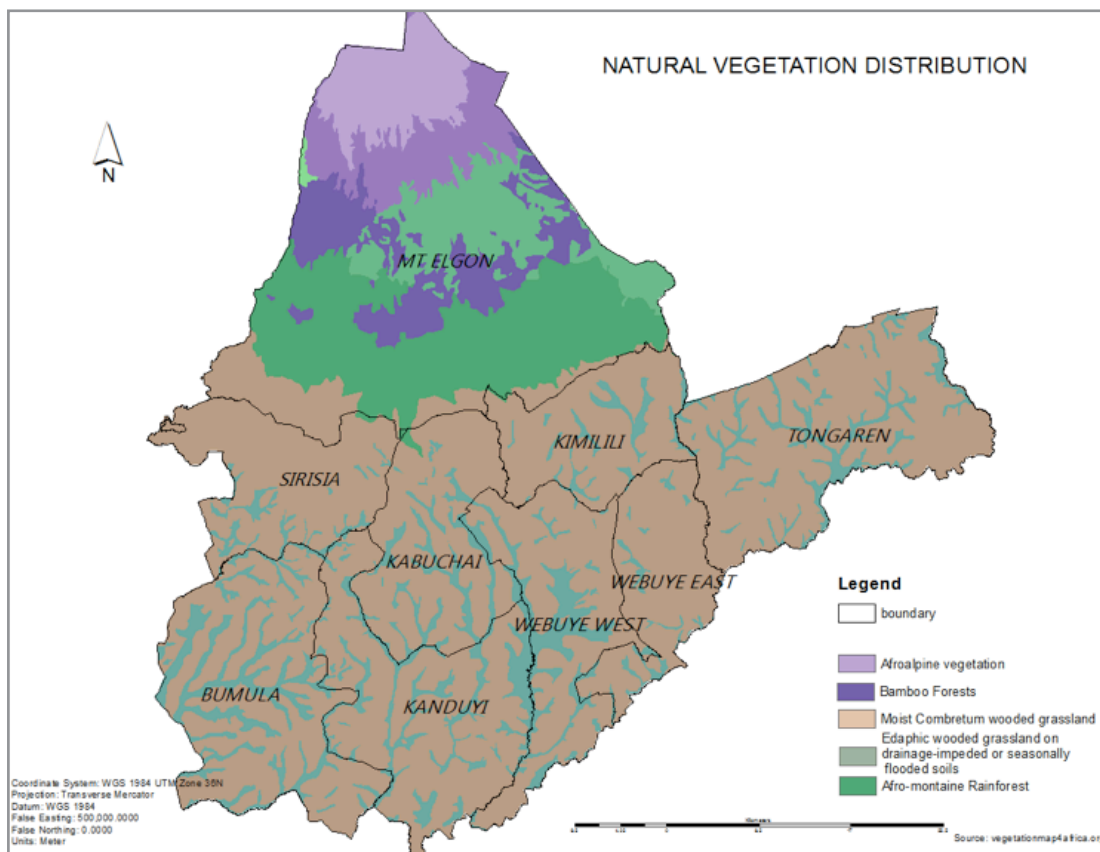
5.6.1 Overview:

Vegetation supports critical functions in the biosphere, since it helps in the regulation of airflow and supports the various biogeochemical cycles within the atmosphere such as those of water and gases in the atmosphere. Vegetation plays a major role in energy balance in the atmosphere. Vegetation cover influences climate as its major parameters such as rainfall, humidity, evapotranspiration is influenced by the percentage vegetation cover within a particular area.

Soil characteristics is greatly affected by the vegetation cover since it will influence soil volume, the chemistry and texture and plays a major role in the existence of the wildlife habitat since it is home to the various species of insects, birds and mammals which also get food from it and help in balancing of the ecosystem.

Vegetation distribution in Bungoma County is majorly influenced by the climate and the altitude of the county. The high altitude areas in the county are highly vegetated compared to the low altitude areas in the county which are not heavily vegetated and face threats by human activities.

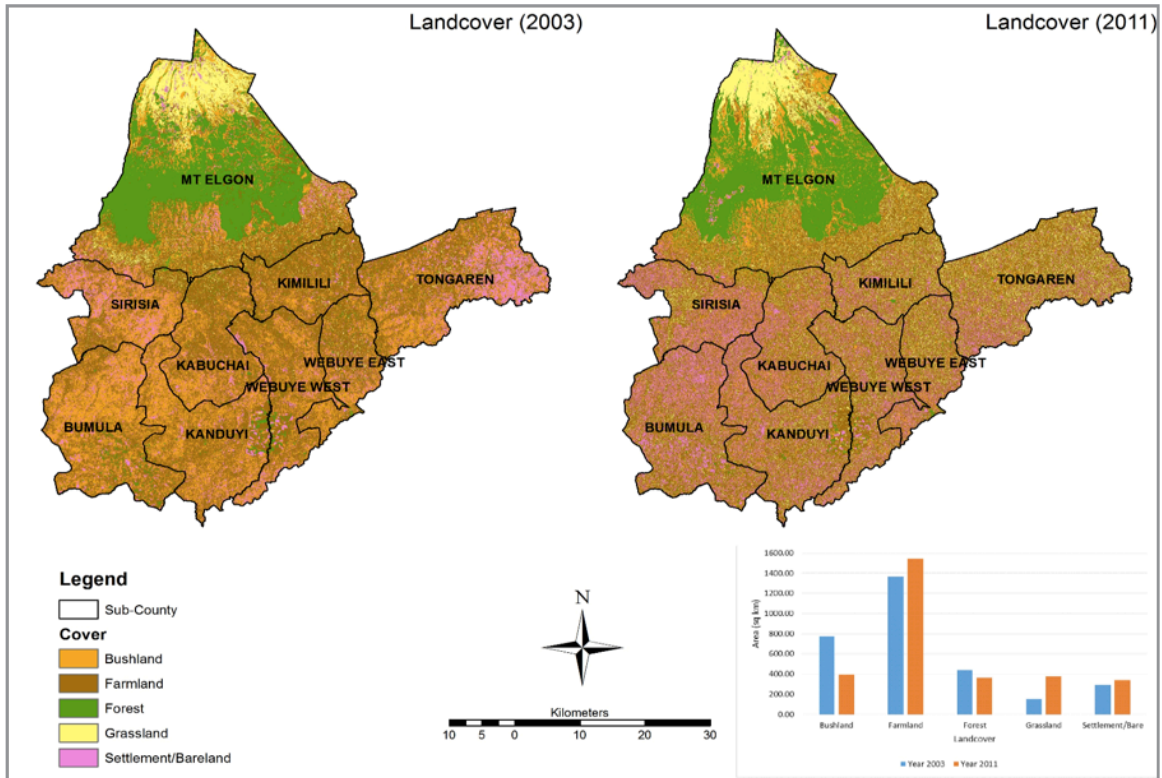
Map 18: Natural vegetation distribution



Prepared by: Two Ems Associates (Adapted from Vegetation Map For Africa), 2016)

In the past few years land cover has experienced various changes as illustrated in the map below:

Map 19: Land Cover



Source: Two Ems Associates Limited (Adapted from GeoEye), 2016

5.6.2 Forests:

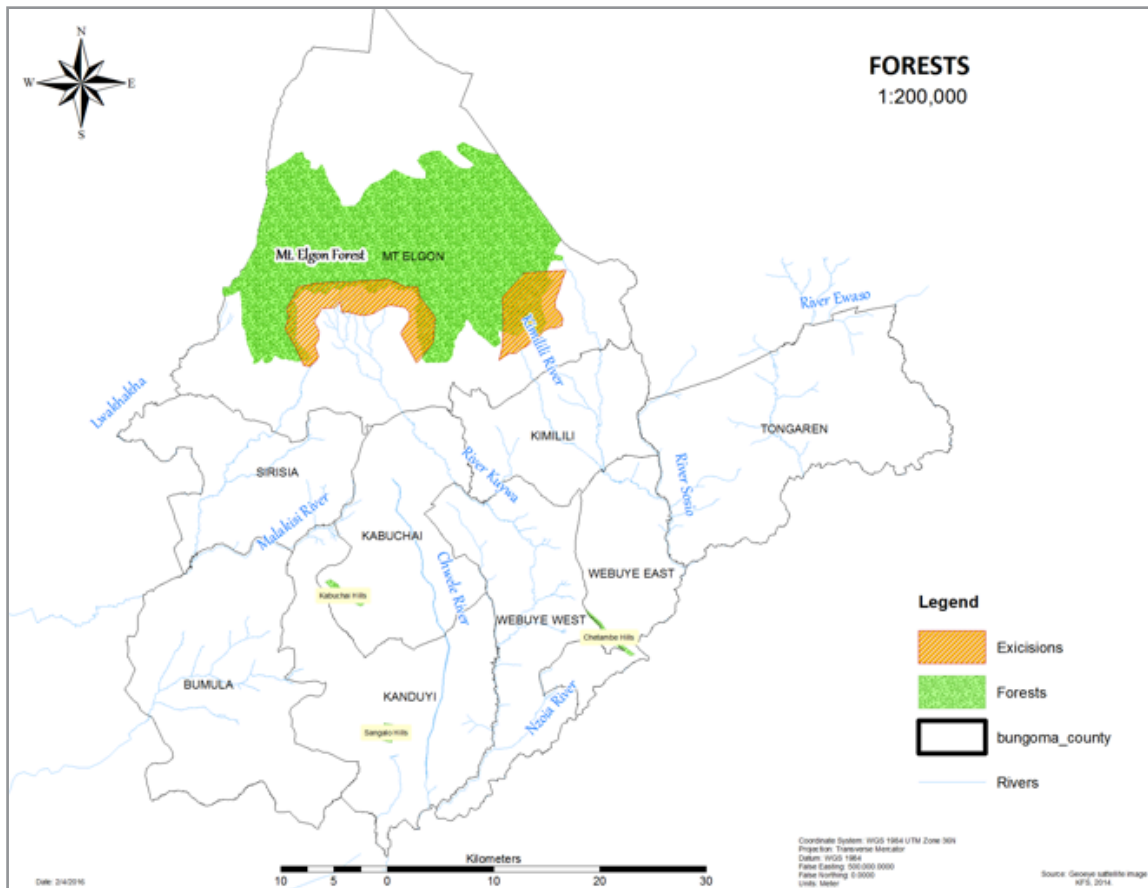
Forests play a major role in the environment hence the need for the conservation and protection of forest ecosystems not just in the county but also in the country. Various resources like water are from forests, which are catchment areas for the major rivers, which drain into water bodies

Forests are also the sources of terrestrial habitats for biodiversity. The maintenance of the forest biodiversity protects opportunities such as food and medicines mostly traditional medicines, social sustainability by offering aesthetic, spiritual and recreational settings to the residents and maintaining of the habitat for the various species of birds, insects and other wild animals.

The impact of hilltop forest cover on microclimate (i.e. soil, temperature and soil moisture conditions) is significant, as it moderates the effects of temperature and wind, and significantly changes the humidity regime (Wass, 1995).

The existing forest ecosystems are important in conservation of soil, water catchment areas and biodiversity. They relatively influence the climate of the area hence the need for the conservation. The major forested areas in the County include; Mt. Elgon and Chepkitale Forests. Other forested areas include; Sangalo hills, Kabuchai hills and Chetambe hills which are also forested areas. The Map below illustrates the location of different forested areas within the county. Chepkitale game reserve, Mt. Elgon National Park, Mt. Elgon Forest Reserve are home to a range of flora and fauna within the county. It is a habitat to the wild animals like elephants and various species of birds.

Map 20: Forests within the County



Mt. Elgon

It covers a total area of 618.2km²

It rises 4321m above sea level and is the major catchment area for most rivers in the County

Forest stations:

These are the areas where forest excisions takes place.

Prepared by: Two Ems Associates (Adapted from GeoEye Satellite Image, KFS), 2015.

The forests in the County are particularly important for various reasons:

- Mt .Elgon is a the water catchment area for rivers in the County
- Wildlife habitat for birds and animals.
- Act as tourist attraction site which generating foreign/ local revenue.
- Source of biomass fuel to the people
- Source of construction material e.g. timber.
- Source of medicine and herbs to the local residents.
- Chepkitale is Source of food and honey to the Ogiek
- Chepkitale is used for religious functions by the Ogiek
- The forests also influence the climate of the county and its environment

5.6.2.1 Potential Threats to Forests Ecosystems in the County:

With forest ecosystems being vulnerable to natural shocks, mismanagement and unsustainable use, many are facing the threat of depletion, and as a result, the ecosystems and biodiversity of water catchments have been increasingly degraded. Agricultural encroachment and charcoal production are degrading the forests in many areas as well. In most cases majority of the forests have been cleared for crops on slopes, hence making them susceptible to erosion and landslides.

Due to the rapidly growing population, human encroachment around Mt. Elgon over the recent years have increased the developmental needs within the high potential areas where catchments are concentrated. These has further increased demand for fertile land, water, and energy, therefore

putting considerable pressure on the resource as it is the main water catchment for majority of the rivers which originate in the western region.

Human activities like deforestation and the desire to cultivate more land for food security has led to the cutting of the trees on the slopes of the hills and the mountain. This has therefore left the land vulnerable to erosional activities and in some cases landslides, within some regions.

Authorized logging has been practiced in Mt. Elgon since at least the 1930s. While a 1986 Presidential Decree banned all logging in Kenya's natural forests, it excluded Mt. Elgon where legal logging is an ongoing activity.

Plate 4: Human encroachment on mountain slopes to farm

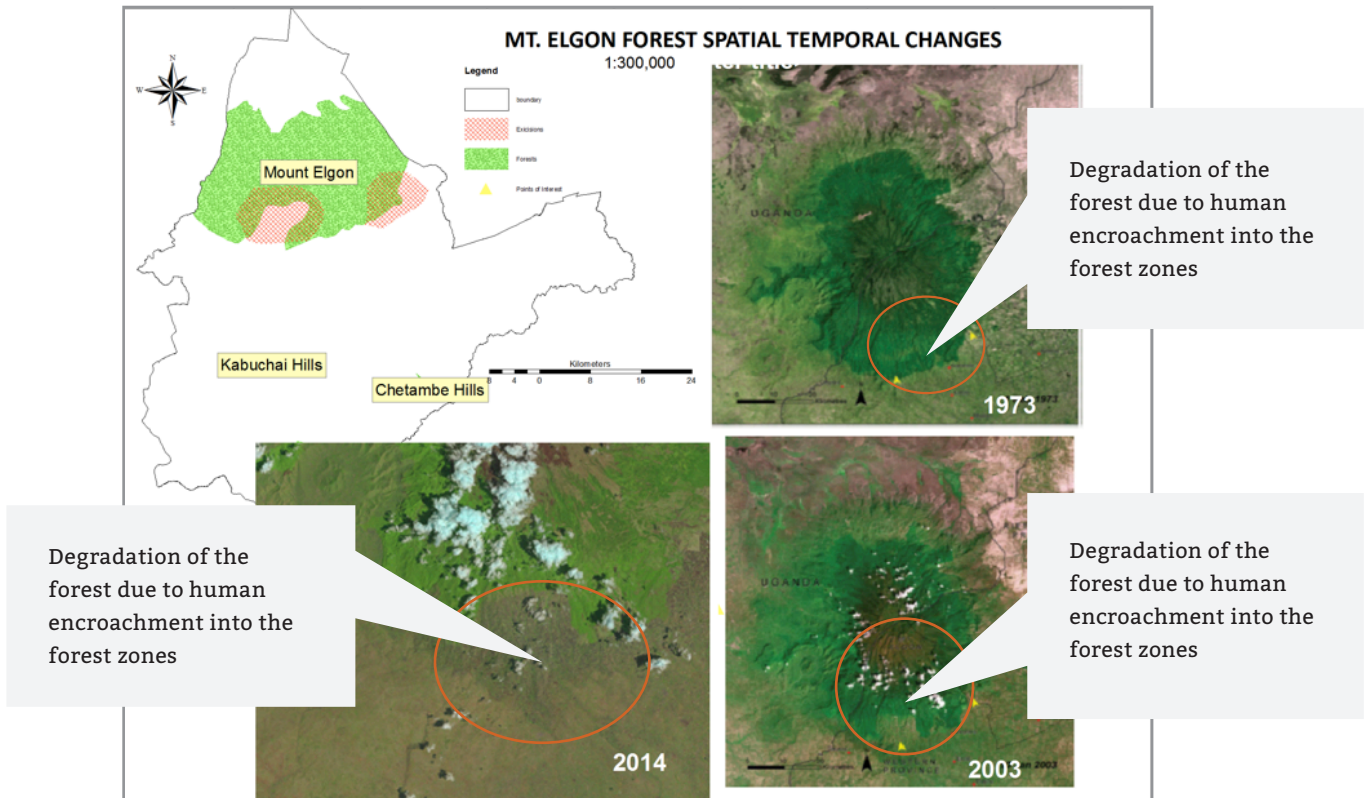


Source: Field survey 2015.

5.6.2.2 Spatial Temporal changes of Mt. Elgon

Continued degradation and forest loss on Mt. Elgon threatens to undermine the area’s crucial role as a water catchment for the surrounding region and will reduce the viability of the ecosystem itself. The Map below (13) shows spatial temporal changes in the size of Mt. Elgon forest:

Map 21: Spatial Temporal Changes of Mt. Elgon



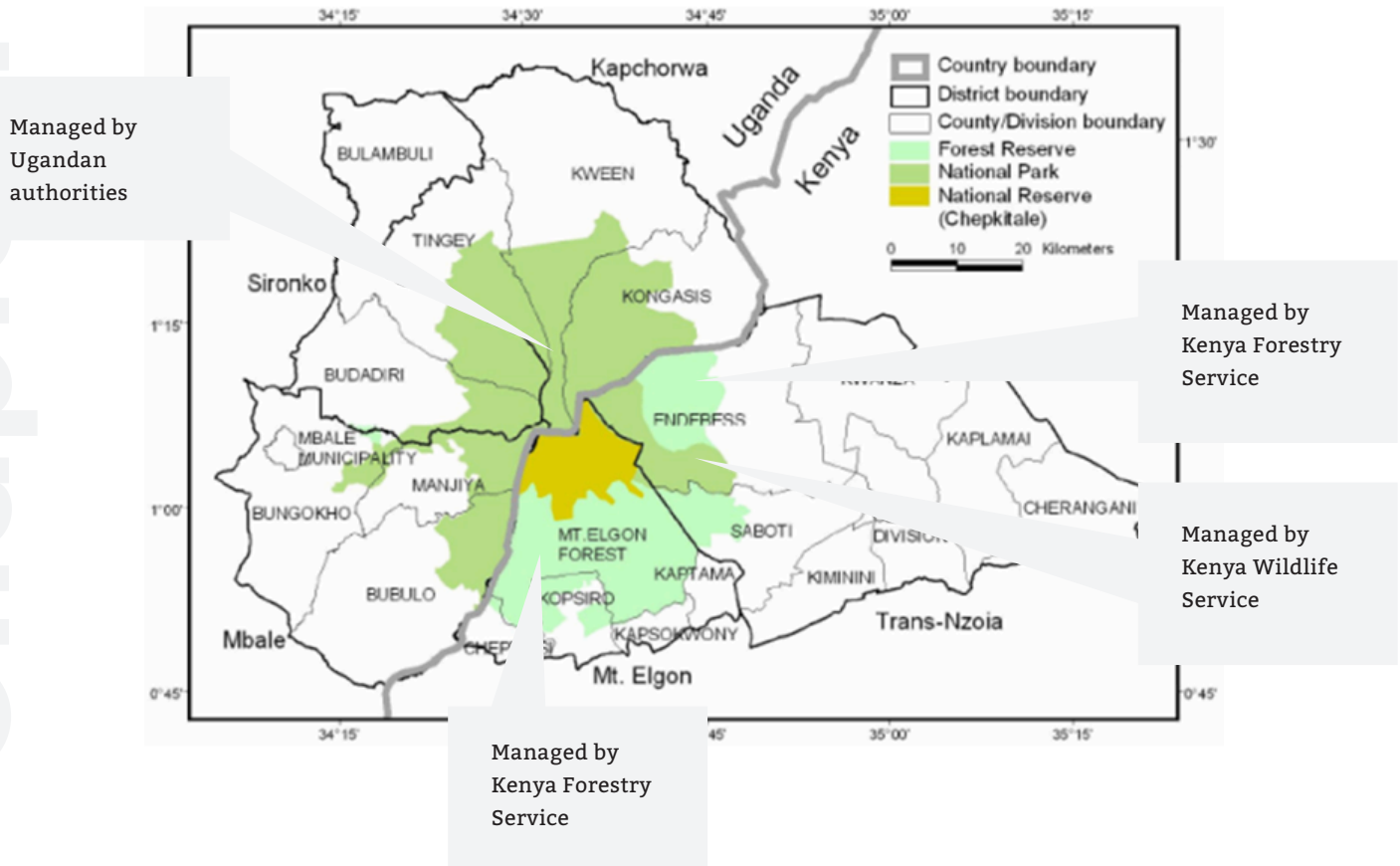
Map 17: Spatial Temporal Changes of Mt. Elgon

5.6.2.3 Transboundary Resources Management of Mt. Elgon

Mount Elgon is a shared resource between Kenya and Uganda. Within Kenya itself, the mountain is a shared resource between the two counties of Bungoma and Transnzoia. This is further compounded by how the area is physical divided and managed within different tenure systems in Kenya. The forest mountain area is divided into four different units: two forest reserves which are split by the national park, and a national reserve.

The Kenya Forestry Service (KFS) controls the forest reserves; the Kenyan Wildlife Service controls the national park while the County Government of Bungoma is the main policy – maker of the national reserve (an area previously managed by the defunct Mount Elgon County Council). These external actors manage their respective areas differently and contribute to differentiation of the people such as farm activities and off- farm activities and non-farm activities.

Map 23: Different Mangement Regimes of Mt. Elgon



Source: S.M. Myren, 2008

Over 2 million people live along its mountain slopes in Kenya and Uganda (ICUN, 2008), as well as a diversity of rare flora and fauna species. In addition to this, the mountain is one of Kenya’s 5 water towers, further elaborating its importance to water supply across county borders. However this interplay of diversity institutional players makes management a complex affair. Some initiatives for trans-boundary management of the mountain ecosystem have included the ‘Mount Elgon Regional Ecosystem Conservation Programme’ prepared through collaboration of various stakeholders, donors and both the Kenyan and Ugandan governments.

5.6.2.4 Level of Utilization of Forestry Resources:

Wood harvesting is the prevalent economic basis of forestry and defines the level of its intensity of use. Logging in the forest mainly targets 13 tree species and harvested trees with diameter at breast height above 20 cm. The most exploited species were *Olea capensis* L. and *Deinbolia kilimandscharica* Taub. Most local communities depend on the forest mainly for subsistence products such as firewood, poles and posts, water, game meat, medicinal plants, often obtained from the forest illegally. Bee keeping is mostly done in the Mount Elgon areas but also among farmers. It produces an annual production of 33000 kilos, which amounts to 8.3 million Kenya shillings.

Overall, the local forest value can be difficult to identify in quantitative terms as it is also a source of non-monetary activities (subsistence use). There is however potential for economic activities to be derived from the forest if proper institutional arrangements which recognize the right of the communities to exploit the forest are put in place.

5.6.3. Wetland Vegetation:

Wetlands refer to areas permanently or seasonally flooded by water where plants and animals are part of its ecosystem. Wetlands control soil erosion and climate stability, and serve as a habitat for a variety of biological diversity thereby providing an important reservoir of genetic material. The county wetlands consist of swamps, marshy areas, peat lands, mountain bogs and riverbanks, which are characterised with vegetation consisting of grass and trees.

The wetlands in the County have over time faced human encroachment due to the increase in population hence need for more land to settle and farm. Therefore there is need for conservation measures as they may be faced out completely.

5.6.4 Emerging Issues (Vegetation):

- The vegetation provides diverse opportunities for tourism (forests housing flora and fauna), soil conservation and energy provision (biomass, timber harvesting through agro-forestry).
- There is deforestation of county forests endangering water resources, causing biodiversity loss and contributing to climatic changes.
- Human activities such as bush clearing and charcoal burning have contributed to reduction of the vegetation cover.

5.7 WILDLIFE RESOURCES

5.7.1 Overview:

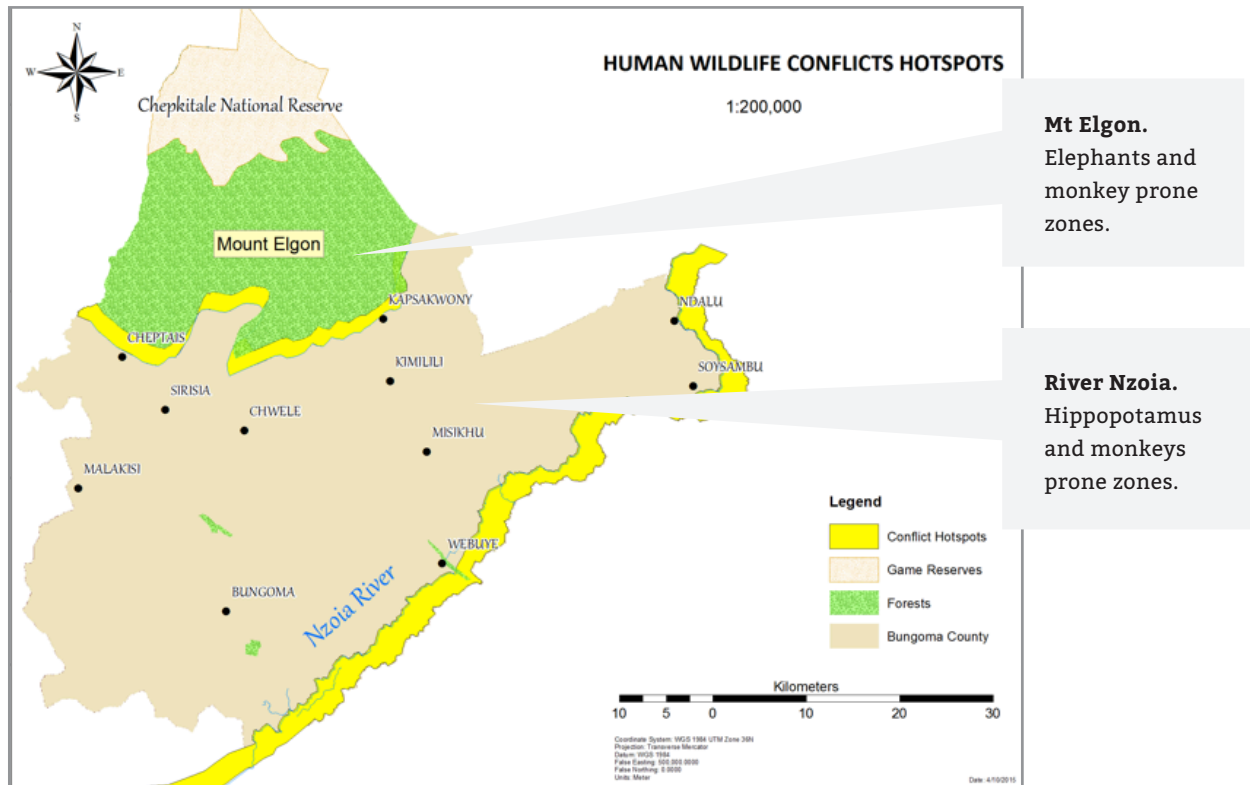
Analysis of wildlife resources is important as this often forms the backbone of tourism, which is one of Kenya's top 3 foreign exchange earners. Snakes, Elephants and Monkeys are present in Mt. Elgon national reserves. The reserve is one of the main tourist attraction sites in the county. Local tourists and international tourists visit the game reserve and in return, the county government earns revenue.

5.7.2 Human Wildlife Conflicts:

Human and wildlife conflict are present in areas around Mt. Elgon, where monkeys and elephants are the main causes of human-wildlife conflicts. This is also seen along River Nzoia, where hippopotamus and monkeys destroy human agricultural produce.

From the field survey 77% of the respondents stated that there is minimal/ no human and wildlife conflicts in the county while 23% of the respondents mostly living around Mt. Elgon and along river Nzoia, experience human-wildlife conflict. Such conflicts include; destruction of agricultural produce majorly by elephants and monkeys from the reserve.

Map 24: Human Wildlife Hotspots



Prepared by: Two Ems Associates, 2015 (Household Surveys).

5.7.3 Emerging Issues (Wildlife Resources):

- The county is home to a diversity of wildlife.
- Human-wildlife conflict is prevalent in various areas in the county, particularly those bordering forests and rivers.
- While opportunities exist for wildlife tourism from the Chepkitala Reserve, there is no gate to the reserve for possible revenue collection from tourists.

5.8 ENERGY RESOURCES

5.8.1 Overview:

Energy plays a critical role in the development of a county. It is the driver of all economic sectors (industry, agriculture, trade) and contributes to higher qualities of life. The major sources of energy in Bungoma County are Firewood (90%) and electricity (5%). The alternative sources of energy used in the county are solar power and biogas, which are yet to be fully exploited. The level of green energy utilization in the county is at 10% (Dept of Energy, Bungoma).

5.8.2 Hydropower Resources:

The county has a potential of producing more hydropower in areas like; Webuye falls, River Kuywa and Lwakhakha River. The consistent power blackouts experienced in the county can be curbed through the generation of more hydropower energy with the perennial rivers having a potential to contribute more power to the general grid.

Map 25: Hydropower potentials and the proposed dams.

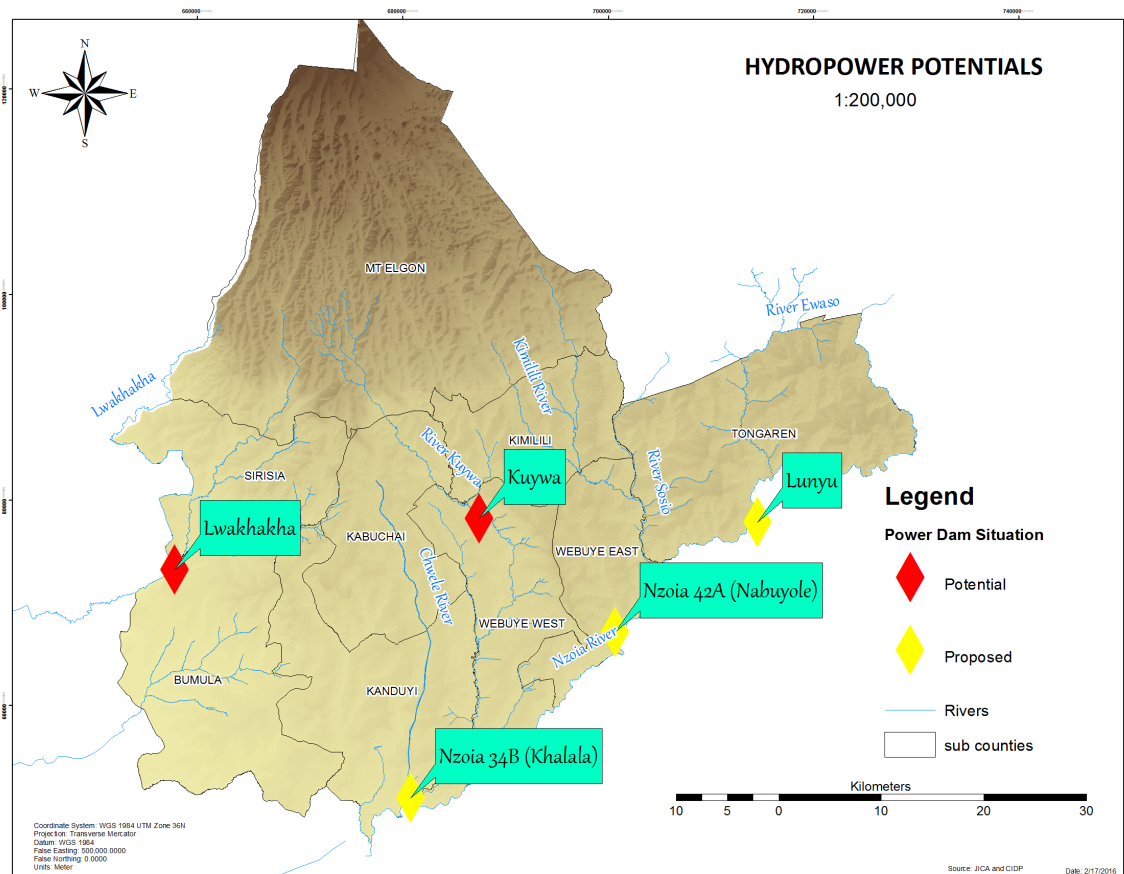


Table 11: Proposed Hydro Power Stations and capacities in the County.

Name of plan.	Installed capacity(MW)	Current situation.	Purpose.
Nzoia (34B) Multipurpose Dam	16 MW	Planning stage.	Water Supply, Flood Control, Irrigation, Hydropower
Nzoia (42A) Multipurpose Dam(Nabuyole falls)	24.4 MW	Planning stage.	Flood Control, Hydropower

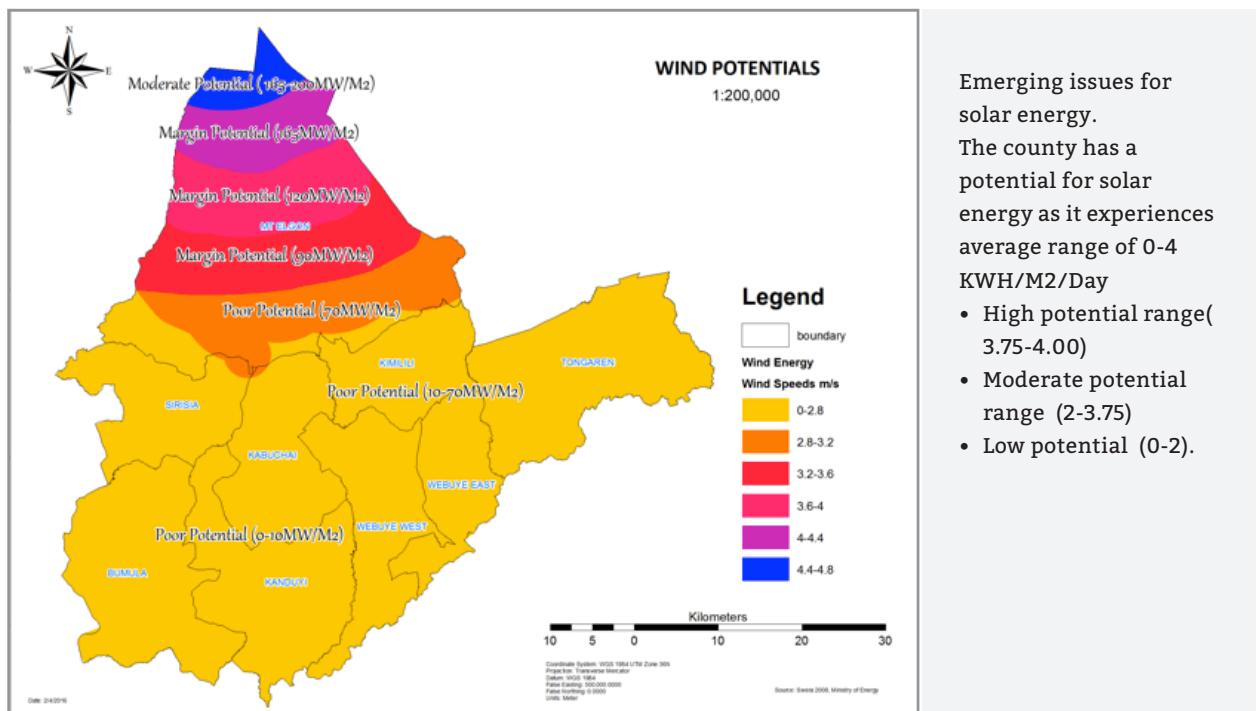
Source: NWMP (1992)

The county has a potential of producing more hydropower in areas like; Webuye falls, Mwikhupo falls, River Kuywa and Lwakhaha River

5.8.3 Wind Power Resources:

The location of the country within the equatorial region does not favour very strong winds that can be used in generation of substantial amount of wind energy unlike those experienced in the extra-tropical regions where the winds are always very strong. The wind speed in the county is low but there is moderate potential in Mt. Elgon region with the capacity to generate power at small scale.

Map 26: Solar energy potentials in the county.



Prepared by: Two Ems Associates (Adapted from the Ministry of Energy), 2015.

5.8.5 Wood Fuel:

In comparison with other sources of energy including hydro-geothermal, wind and solar power, it has been established that wood fuel (67%) is the most relied upon and 17% charcoal for cooking within Kenya’s population (GOK, 2011)

Mt. Elgon is the main source of wood fuel (charcoal and firewood), which contributes 95% of the total energy source in Bungoma County. Woodlots in individual farms most of which belong to pan paper mills and Nzoia sugar company also provide sources of wood fuel within the county.

5.8.6 Emerging Issues (Energy Extraction and Environment):

The cutting down of trees as a source of firewood has over the time led to deforestation and the decline in the vegetation cover in the county. The Vegetation and the trees compact the soil but due to human activities like charcoal burning, bush clearing and deforestation, the land is left bare, therefore vulnerable to erosion activities.

Human activities like encroachment into forests have led to human and wildlife conflict as wildlife animals have moved into human settlement schemes in search for food and water.

5.9 POTENTIALS/ OPPORTUNITIES AND CONSTRAINTS

Sector	Opportunities	Constraints
Topography	The highest point in the county, Mount Elgon forms one of Kenya’s five water towers. The topography is scenic and is home to tourist attraction sites. Wind energy can be tapped in the hills and mountain-top.	The steep terrain in the highland areas of the county constrains infrastructural expansion. There is soil erosion during heavy rains from Mount Elgon slopes and other hilly areas caused by human encroachment and poor farming practices on these fragile sites. Low-lying areas such as Bumula experience flooding from run-off from the hilly areas.
Climate	The county experiences high rainfalls favoring agricultural production. There are climatic opportunities for green energy tapping (solar and wind energy).	High rainfall has contributed to flooding and soil erosion. Climate change over the recent years has resulted in unpredictable weather patterns impacting agricultural practices negatively.
Geology, Soils and Minerals	The soils in the county are rich for agricultural activities. The basement rocks have strong water holding potential and are a possible source of construction materials. Rock outcrops are tourist attraction sites.	Erosion of soils has led to a continued loss of fertility. In certain areas, the rock outcrops limit the extent of development. There is limited knowledge on the financial viability of mineral exploitation in the county.

Hydrology and Drainage	<p>There is a diversity of water sources (both surface and ground water).</p> <p>Water resources provide opportunities for hydropower generation, irrigation and fish-farming</p>	<p>There is encroachment of riparian reserves and unchecked sand-harvesting endangering water resources.</p> <p>There is pollution of the rivers by human activities.</p> <p>Destruction of water towers threatens the sustainability of the county's water resources into the future.</p> <p>The trans-boundary nature of water resource catchment areas makes water resources planning and development a complex affair.</p>
Vegetation:	<p>The vegetation provides diverse opportunities for tourism (forests housing flora and fauna), soil conservation and energy provision (biomass, timber harvesting through agro-forestry).</p>	<p>There is deforestation of county forests endangering water resources, causing biodiversity loss and contributing to climatic changes.</p> <p>Human activities such as bush clearing and charcoal burning have contributed to reduction of the vegetation cover.</p>
Wildlife and Tourism	<p>The county is home to a diversity of wildlife.</p> <p>Human-wildlife conflict is prevalent in various areas in the county, particularly those bordering forests and rivers.</p>	<p>While opportunities exist for wildlife tourism from the Chepkitale Reserve, there is no gate to the reserve for possible revenue collection from tourists.</p>

CHAPTER SIX: ECONOMY

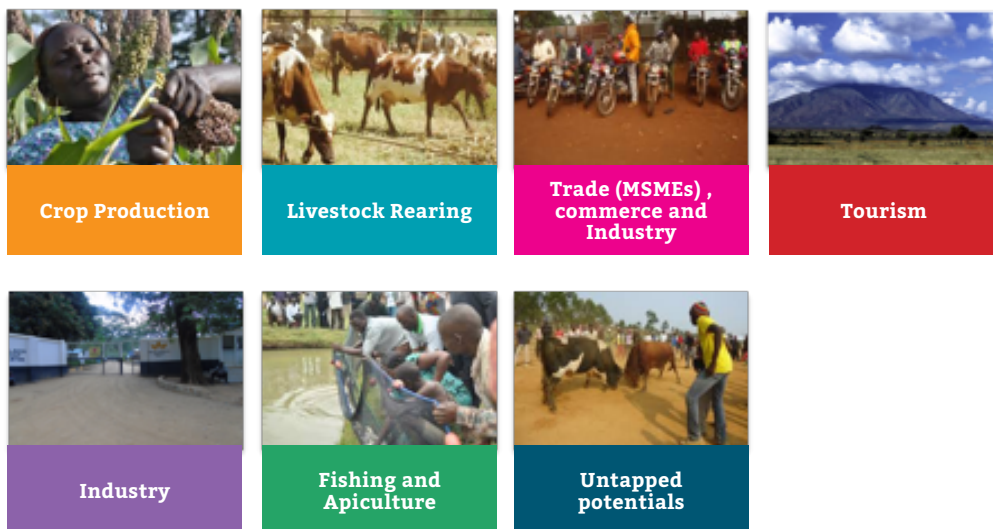
6.1 OVERVIEW

Economic activities occur on space. Economic analysis is important in development planning as it provides important indicators upon which the rate and level of growth and development of a region is assessed. Economic performance influences the standards of living of a people and is an indication of how the people are able to best utilize (sustainably) their natural and human resources. For spatial planning to be sustainable, it must respond to the existing economic activities and try to order economic activities in a sustainable manner.

Information about an area's future population is incomplete without a parallel understanding of the local economy that largely shapes its future. If the local economy is strong, population growth is usually brisk. In times of economic trouble, though, an area often will experience a loss in population- a direct result of a stagnant economy. This analysis will therefore provide important indicators upon which the rate and the level of growth will be measured. These indicators influence or inhibit the standards of living and by extension county development.

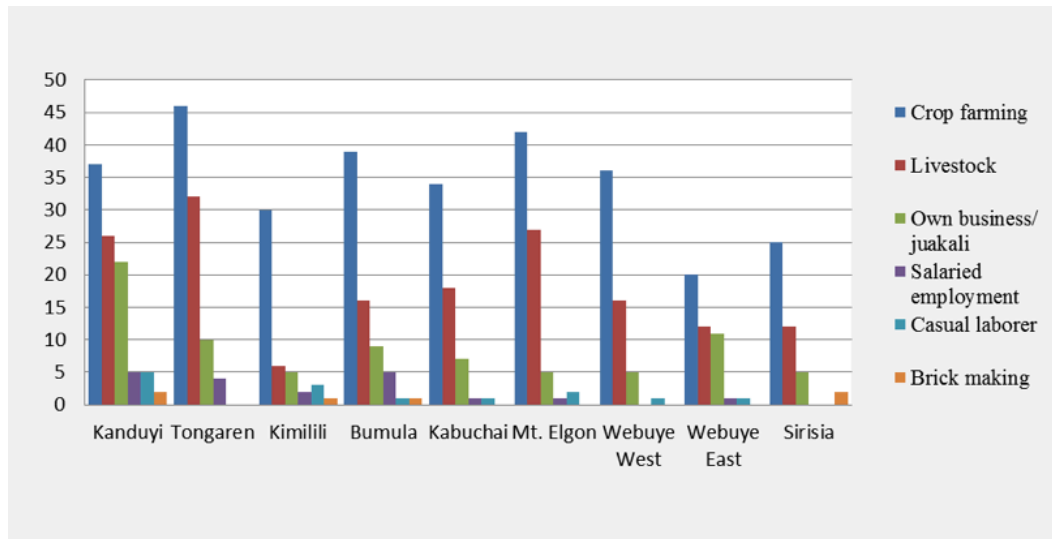
6.2 INTRODUCTION

The county of Bungoma has a total land area of 3,032.4 sq. Km and of this land mass 2,880.78 km sq. is arable. This implies that agriculture is the backbone of the county's economy. About 95% of the county is used for agriculture. Other economic activities include trade and industry carried out by both large scale industries and SME businesses across the County.



The following figure indicates the income activities per sub-county based on the study's sampled household population

Chart 7: Economic activities breakdown per sub County



Source: Field Survey, 2015

6.3 ECONOMIC DRIVERS IN BUNGOMA COUNTY

The local economy of Bungoma County is mainly driven by:

1. Agriculture- Crop farming and livestock rearing contributes to 60% of the County GDP
2. Industries- The industries largely contribute to employment opportunities in the County
3. Commercial businesses
4. Truck economy
5. Co-operative societies
6. Population- The population of the County attracts businesses to serve the market demand and supply

6.4 ESTIMATION OF THE COUNTY GDP

According to the County economic planning unit, calculation of the County’s GDP is calculated at the national level. This is because national statistics have not devolved yet. However, based on production statistics from the various economic activities, a working county GDP and per Capita GDP can be estimated as follows:

Table 12: Estimation of the county GDP

Activity	Income
Crop Production	131,145,888,546
Livestock Production	5,694,730,000
Tourism	-
Trade	-
Total	136,840,618,546

Source: Field Survey, 2015

AGRICULTURE

6.5 CROPS

6.5.1 Overview

Bungoma agriculture sector has the potential to produce enough food for both local use and trade. Food and cash crop including horticulture and fruits, livestock of indigenous and exotic breeds' poultry bee keeping and fisheries constitute the major economic activities.

There is a strong link between this sector performing sub optimally which has resulted to under employment, disguised employment and seasonal unemployment. The need to transform the sector becomes critical to the economy of the County.

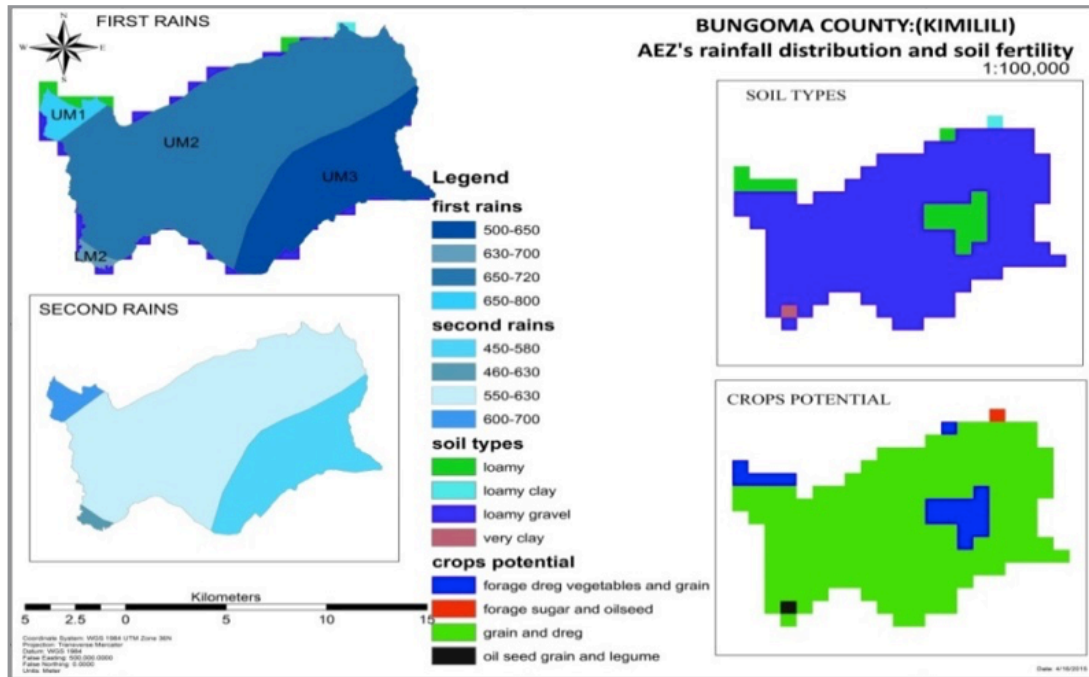
6.5.2 Sub-County Crop Analysis

The following section provides an analysis of crop potentiality by Sub County. It also attempts to map out the potential crops versus the existing use.

1. KIMILILI

- Kimilili has an approximate area land size of 181.20 square kilometers.
- It lies under agro ecological zones UM1, UM2 and UM3 which are coffee maize and tea major zones
- Soil fertility in the area is mainly loamy with few traces of loamy gravel loamy clay and very clay
- This soil fertility makes it a good area for grain and dreg crops and even forage legume and vegetables
- Maize and beans are the major crops grown as per now with expensive farm inputs and low yields being the major challenges encountered

Map 51: Kimilili sub county rainfall distribution and soil fertility



Prepared by: Two EMS Associates

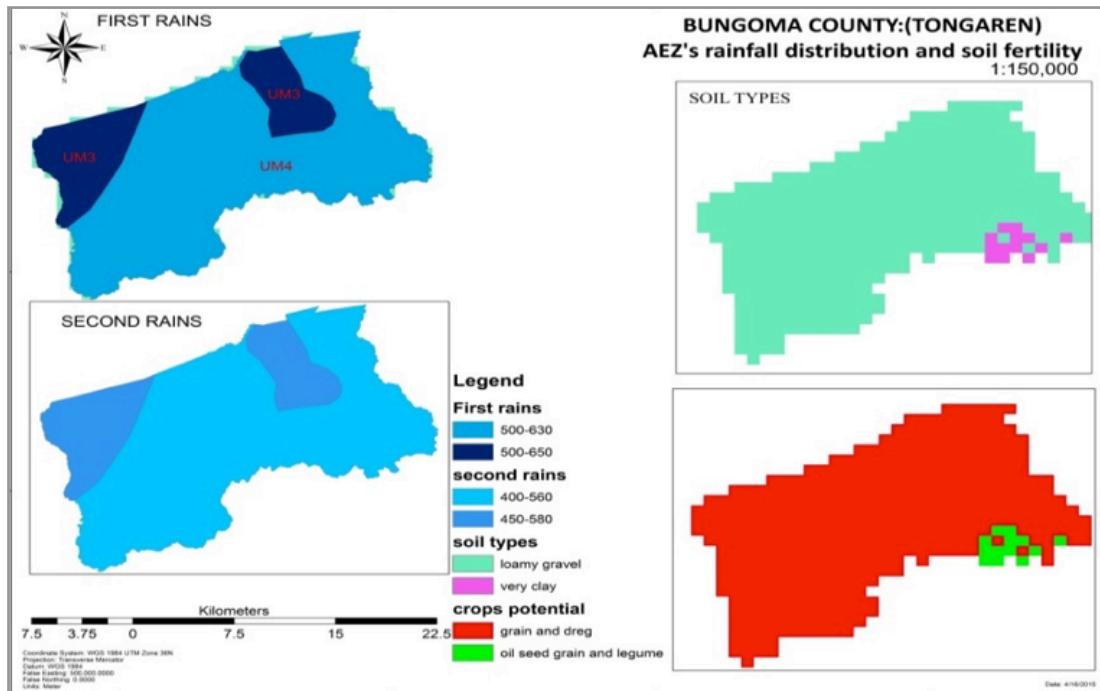
Economic challenges experienced (in order of priority)

- Expensive/poor quality/difficult accessibility of inputs
- Capital challenges
- Low yields
- Poor marketing of products
- No markets
- Inadequate extension services
- Few job opportunities
- Infertile soils
- Harsh climate

2. TONGAREN

- Tongaren sub county has an approximate total land area of 378.30 square kilometers
- It lies under agro ecological zones UM4 and UM3 (coffee, maize and sunflower zones).
- Soil fertility is mainly loamy gravel and a mixture of very clay
- This makes it a good potential for grain dreg oilseed and legume crops
- Maize, beans and bananas are the mainly grown crops. Other crops include: soya beans, sugarcane, groundnuts, and cabbages.
- Sugarcane plantations are eating into Tongaren which is the cereal zone of the county which is posing a great impact on food production for the county

Map 52: Tongaren sub county rainfall distribution and soil fertility



Prepared by: Two EMS Associates

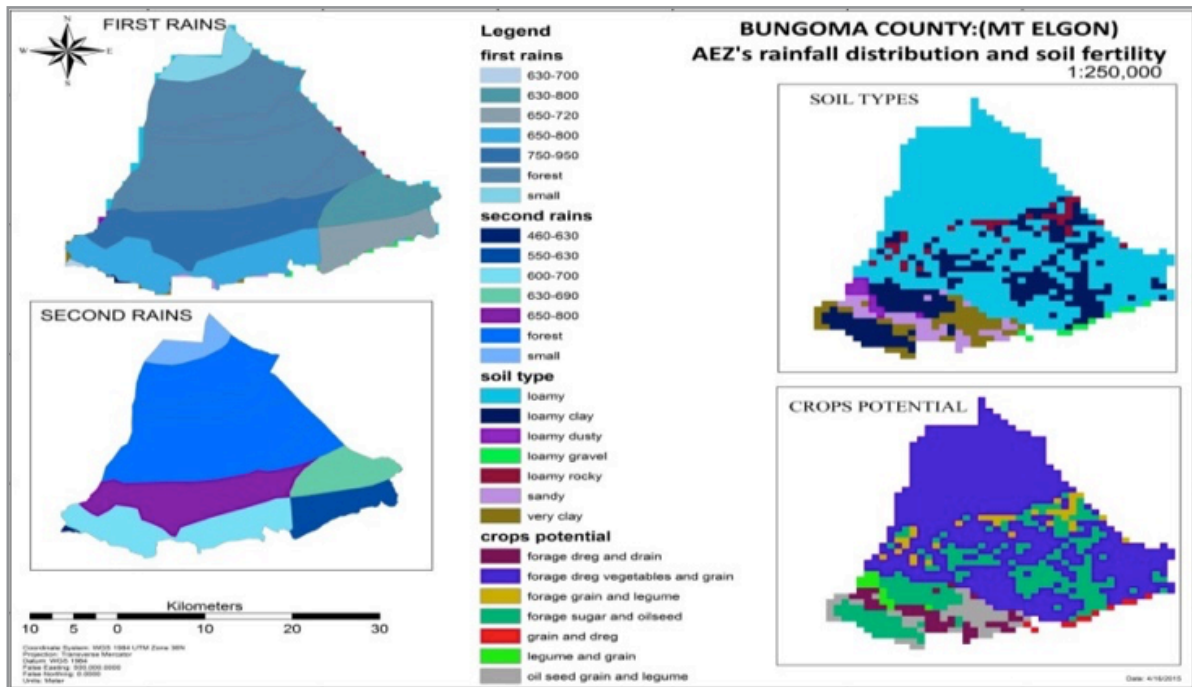
Economic Challenges (in order of priority)

- Expensive/poor quality/difficult accessibility of inputs
- Crop and animal pest and diseases
- Inadequate extension services
- Capital challenges
- Low salaries/inconsistent incomes
- Low yields
- Poor marketing of products
- Climate change
- Harsh climate

3. MT ELGON

- Mt Elgon sub county has an approximate total land area of 388.40 square kilometers
- It lies under agro ecological zones LH1, LH2, UH0, UH1, UM2 and TA11 which are coffee, tea dairy, sheep, wheat, pyrethrum and forest zones.
- Soil fertility loamy clay loamy gravel loamy sandy loamy rocky sandy very clay and loamy
- This makes it a good potential for grain dreg oilseed sugar vegetable and legume crops
- Maize, beans and potatoes are the mainly grown crops. Other crops include: sweet potatoes, onions, coffee.

Map 53: Mt Elgon sub county rainfall distribution and soil fertility



Prepared by: Two Ems Associates, 2015

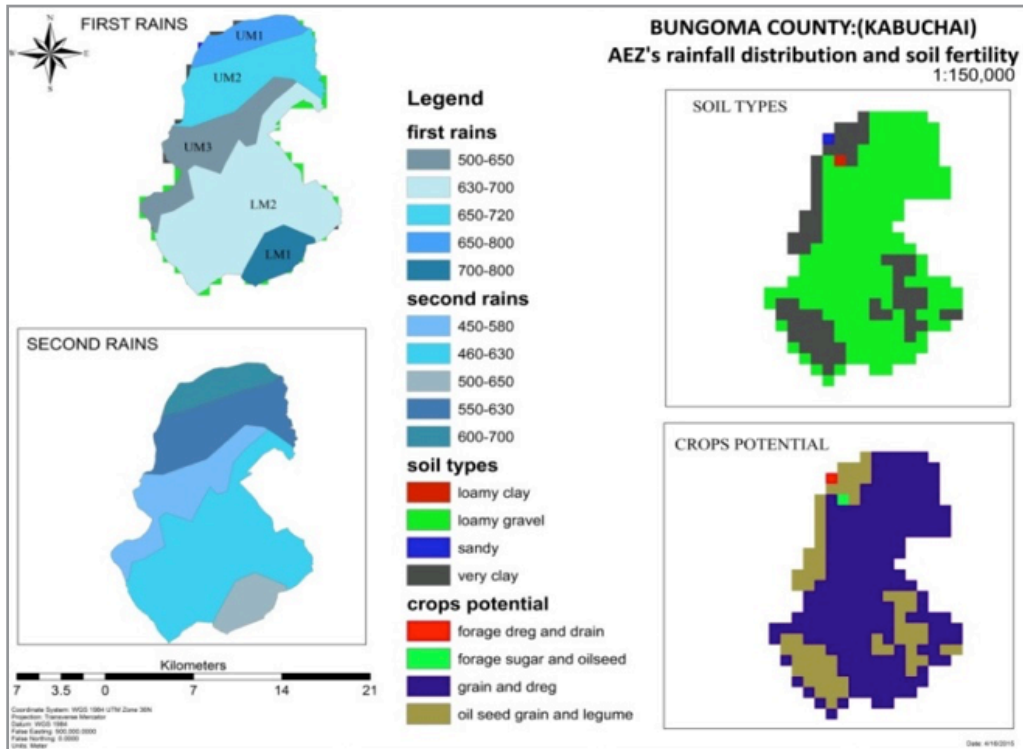
Economic Challenges (in order of priority)

- Expensive/poor quality/difficult accessibility of inputs
- Crop and animal pest and diseases
- Capital challenges
- Infertile soils
- Poor marketing of products
- Low salaries/inconsistent incomes
- Poor roads
- Inadequate extension services
- Harsh climate

4. KABUCHAI

- Kabuchai sub county has an approximate total land area of 232.20 square kilometers
- It lies under agro ecological zones LM1, LM2, UM1, UM2 and UM3 which are sugarcane, coffee and tea major zones.
- Soil fertility is mainly loamy gravel loamy gravel sandy and very clay
- This makes it a good potential for grain, dreg, oilseed and legume crops
- Maize, beans and sugar cane are the mainly grown crops. Other crops include: Bananas, groundnuts.

Map 54: Rainfall distribution and soil fertility



Prepared by: Two Ems Associates, 2015

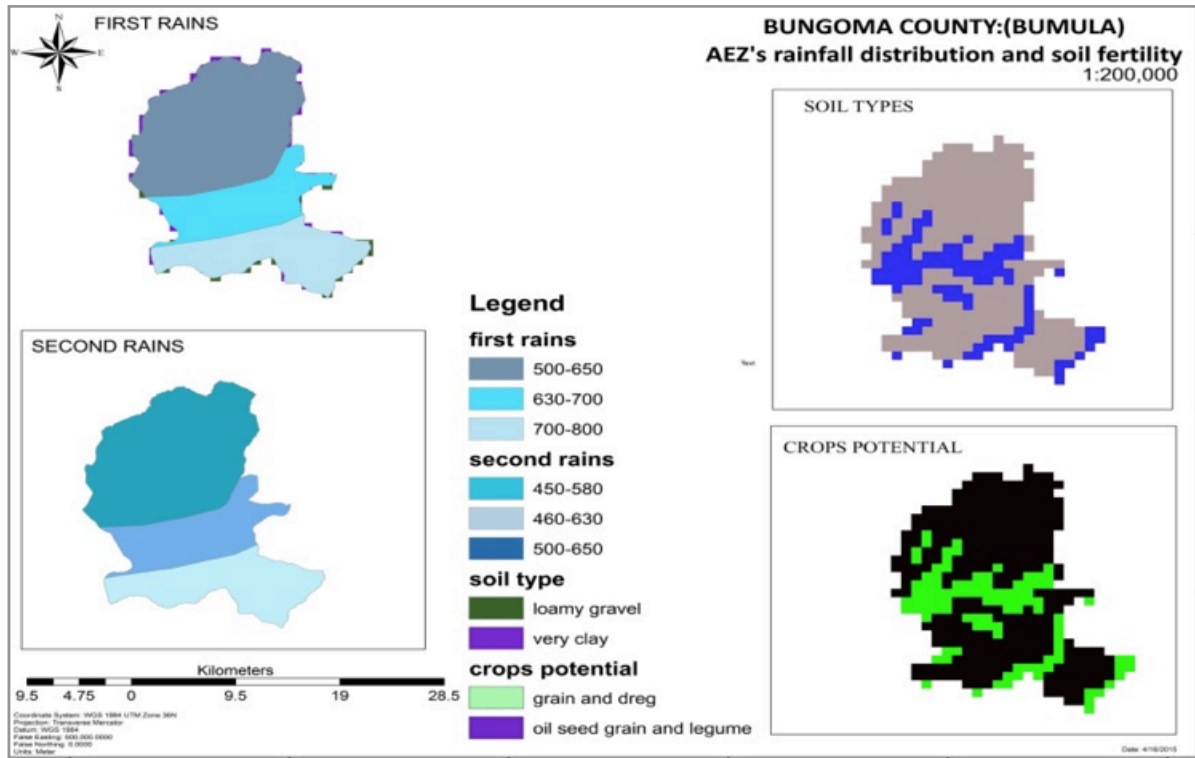
Economic Challenges (inorder of priority)

- Expensive/poor quality/difficult accessibility of inputs
- Poor marketing of products
- Low yields
- Capital challenges
- Harsh climate
- Crop and animal pest and diseases
- Infertile soils

5. KANDUYI

- Kanduyi sub county has an approximate total land area of 210.80 square kilometers
- It lies under agro ecological zones LM1 LM2 UM3 and UM4 which are sugarcane maize sunflower and coffee major zones
- Soil fertility is mainly loamy gravel and very clay.
- This makes it a good potential for sugar and legume crops
- Maize, beans and sugar cane are the mainly grown crops with poor quality farm inputs and theft as the main challenges

Mp 36: Rainfall distribution and soil fertility



Prepared by: Two Ems Associates, 2015

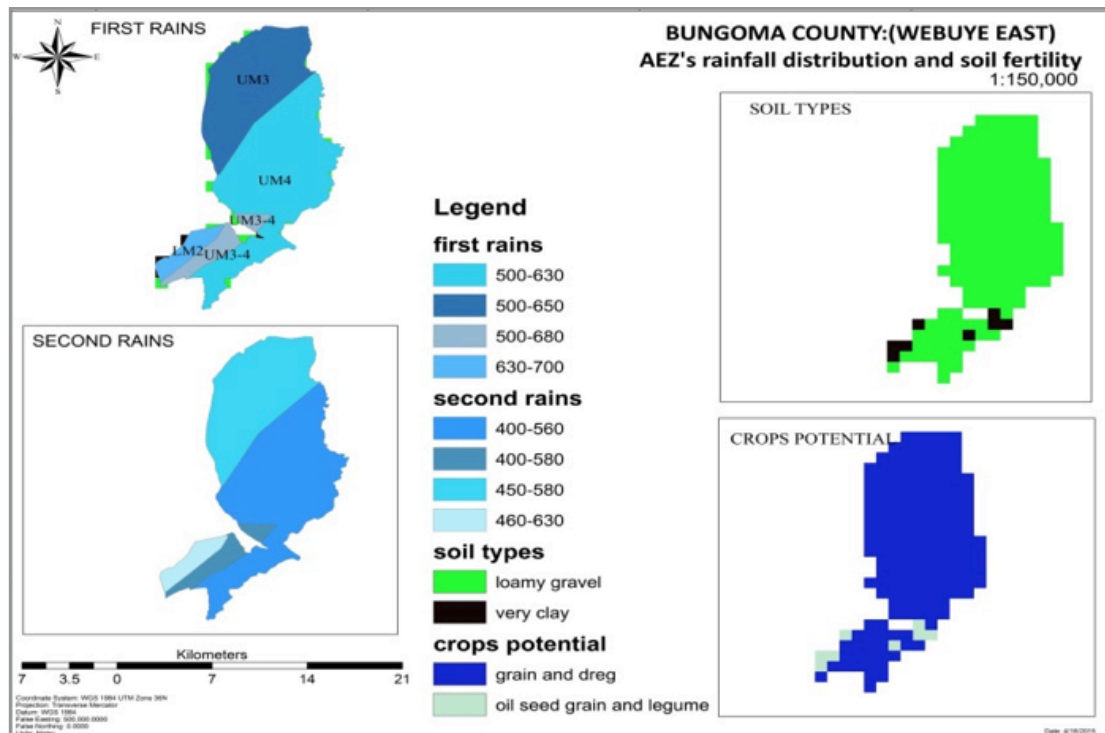
Economic Challenges (in order of priority)

- Expensive/poor quality/difficult accessibility of inputs
- Low yields
- Poor marketing of products
- Crop and animal pest and diseases
- Low salaries/inconsistent incomes
- Delayed payments
- Capital challenges

6. WEBUYE EAST

- Has an approximate total land area of 161.50 square kilometers
- Falls under agro ecological zones UM3 UM4 and LM2 which are maize sunflower, coffee and sugarcane major zones
- Soil fertility in this area is loamy gravel and very clay
- This makes it a good potential for legume crops
- Maize, beans sugarcane and bananas are the main crops grown with poor quality farm inputs and inadequate extension as the main challenges

Map 47: Rainfall distribution and soil fertility



Prepared by: Two Ems Associates, 2015

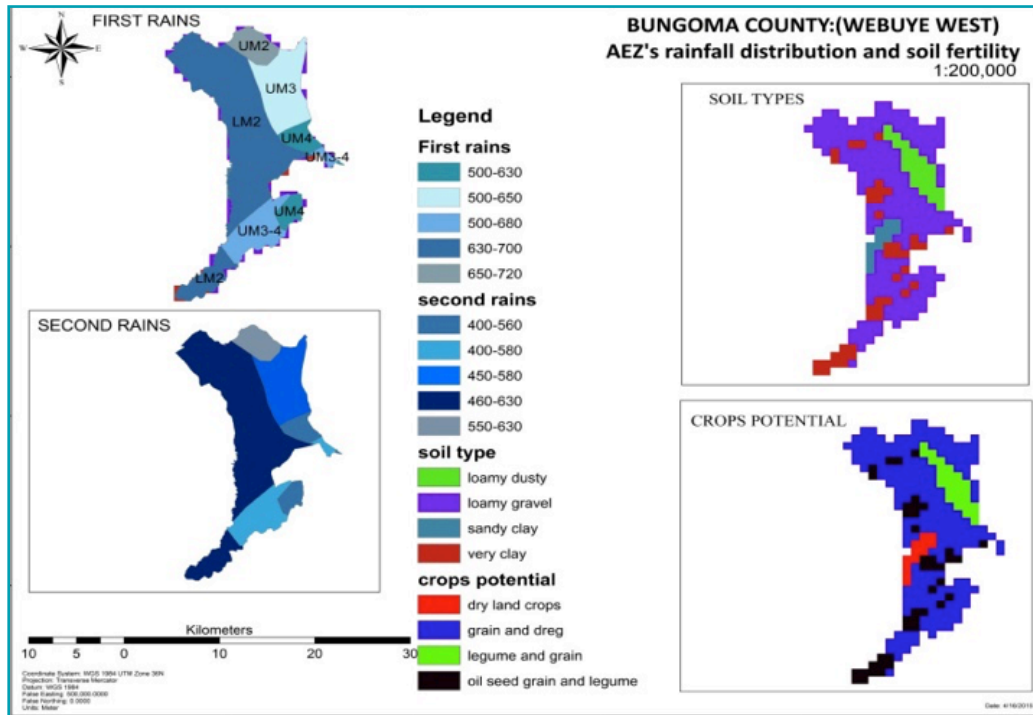
Economic Challenges (in order of priority)

- Expensive/poor quality/difficult accessibility of inputs
- Capital challenges
- Inadequate extension services
- Low yields
- Poor marketing of products
- Poor roads
- Insecurity
- Police harassment

7. WEBUYE WEST

- Has an approximate total land area of 246.20 square kilometers
- Fall under ecological zones UM2 UM3 UM4 and LM2 which are coffee, maize, sunflower and sugarcane major zones
- Soil fertility in this area is a mixture of loamy gravel loamy dusty sandy clay and very clay
- This makes it a good potential for legume crops
- Maize sugarcane and beans are the main crops grown with poor quality farm inputs and pest and diseases as the major challenge.

Map 48: Rainfall distribution and soil fertility



Prepared by: Two Ems Associates, 2015

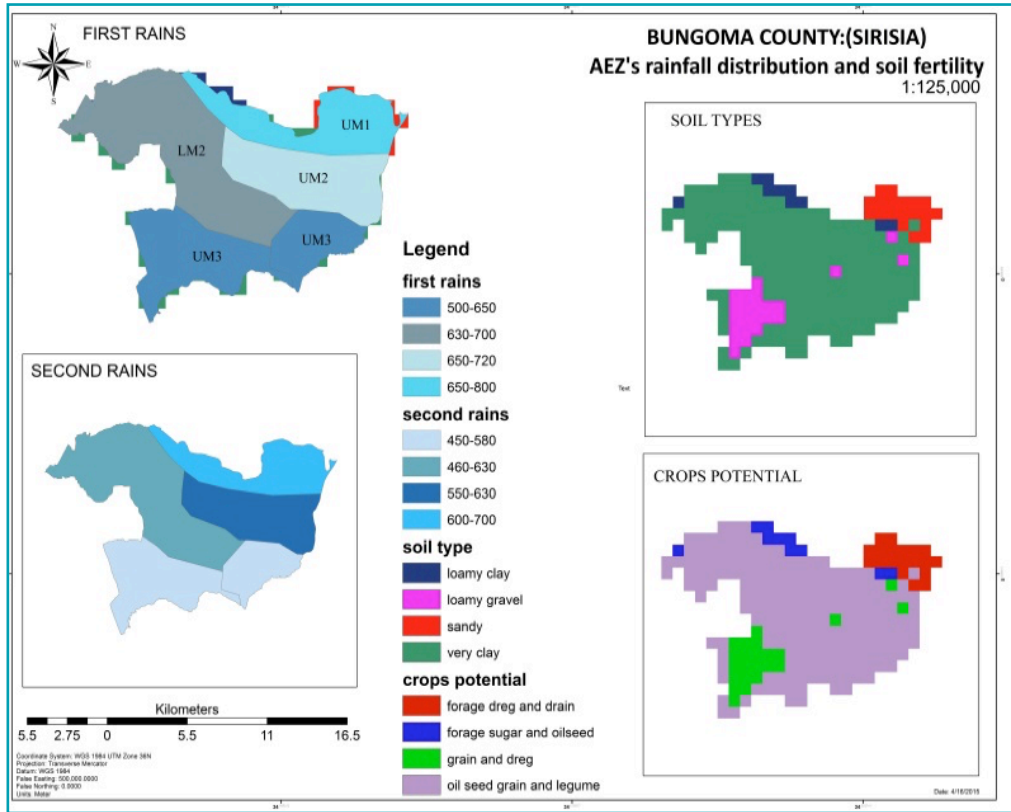
Economic Challenges (inorder of priority)

- Expensive/poor quality/difficult accessibility of inputs
- Low yields
- Poor marketing of products
- Crop and animal pest and diseases
- Low salaries/inconsistent incomes
- Delayed payments
- Capital challenges

8. SIRISIA

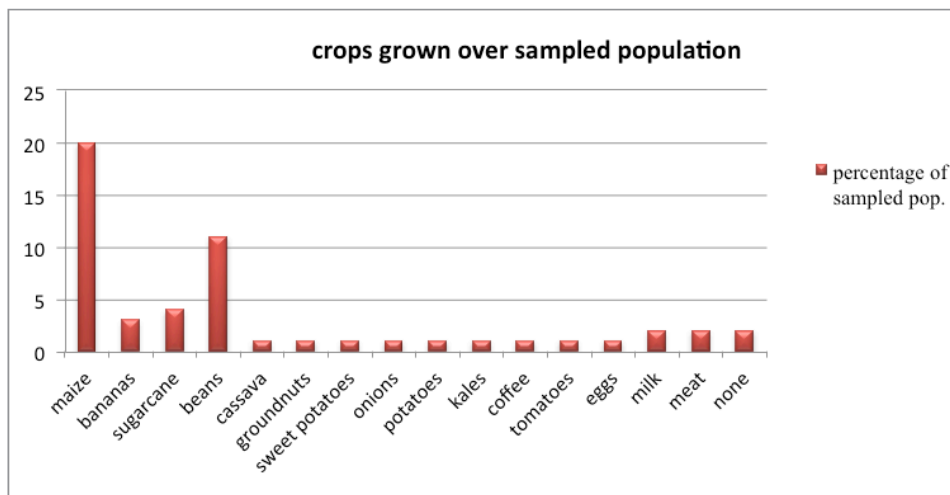
- All is under an approximate total land area of 213.20 square kilometers'
- Falls under ecological zones UM1 UM2 UM3 and LM2 which are coffee, tea, sugarcane, maize and sunflower major zones
- Soil fertility is a mixture of loamy dusty loamy gravel sandy and very clay
- This makes it a good potential for legumes crops
- The main crops grown are Beans, Maize and Bananas. Other crops include: Cassava, Groundnuts, Cabbages and Sugarcane
- The main challenges encountered are poor quality farm inputs, capital challenges and climate change.

Map 49: Rainfall distribution and soil fertility



Prepared by: Two Ems Associates, 2015

Chart 18: Crops grown over sampled population in Bungoma County



Source: Field survey, 2015

6.5.3 Farming Activities

Table 13: Farming activity schedule for ecological zones UM1-4 and LH1-2

ACTIVITY	CROPS	Beans 1	Beans 2	Maize	Coffee	Pyrethrum	Sweet bananas
Land preparation	Jan- Feb	Jun – Aug	Jan-Feb	-	-	-	
Seeding	Feb-march	Jul- Sept	Feb-March	-	-	-	
First fertilising	March	July	Feb-March	Jan-Jul	-	-	
Second fertilising	-	-	March-May	-	-	-	
Dusting and spraying	-	-	Mid-April-June	Jan-Dec	Feb April and Sept	-	
Pruning and cutting	-	-	-	Jan-June	Jan April August	Jan May Sept	
1st weeding	March–April	Aug-Sept	March–April	Jan-Dec	Jan-Dec	March - Nov	
2nd weeding	April	-	April – June	-	-	-	
3rd weeding	April	-	May	-	-	-	
Harvesting	May-June	Oct-Nov	August -Dec	Aug-Jan	Jan-Dec	Jan-Dec	

Source: farm hand management book

Table 14: Farming activities distribution in zones LM1-2

ACTIVITY	CROPS	Maize and beans	Sugar cane	Cotton
Land preparation	Jan – March or Nov - Dec	-	Jan - Dec	
Seeding	Feb - March	-	March - Jul	
First fertilising	Feb - March	April	March	
Second fertilising	-	-	-	
Dusting and spraying	-	-	April - Nov	
Pruning and cutting	-	Jan – Aug and Oct -Dec	-	
1st weeding	Feb – May	Jan - Dec	March – May or June - Aug	
2nd weeding	May – Jul		April – Sept	
3rd weeding	Jul – Aug		May – Oct	
harvest	Jul - Sept	Sept Oct Nov	Jan – March or Aug – Nov	

Source: Farm hand management book

6.5.5 Soil Fertility And Crop Production

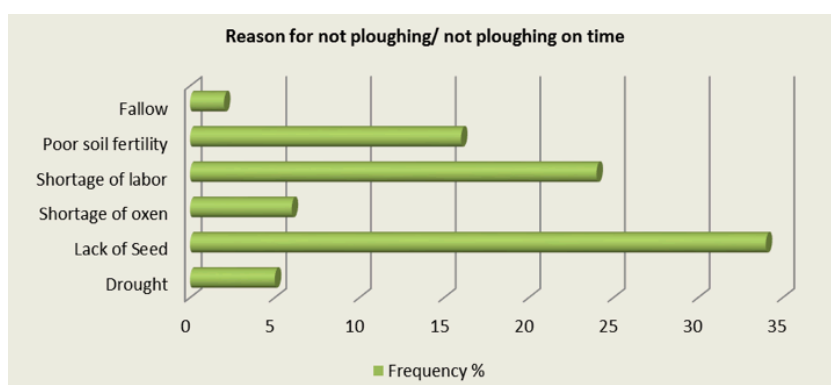
Except for the volcanic deposits around Mt. Elgon and, soils in Bungoma have mainly developed on basement rocks, which are normally not rich in nutrients. A dense population needs to cultivate continuously; thus the nutrient content of the soils is diminishing at a dangerous rate. On the other hand, the heavy rains of the humid and semi humid climates there have leached the soils considerably for years.

Artificial fertilization can increase the yields of food crops considerably, but for sustainable farm management it is necessary to combine it with nutrient recycling by any kind of farm manure, crop residues etc.

According to the baseline survey, about 13% of the surveyed population did not use improved seed in the year 2013 while 75% bought planting seeds from the market. Other seeds came from the ministry of agriculture, seed aid and own seeds from previous produce.

Lack of farm tillage was also observed in the County, while a majority of the farmers did not plough ton time. Some of the reasons advanced for not ploughing or not ploughing in time were presented as follows:

Figure 5: Reasons preferred why farmers fail to plough or do not plough on time



6.5.6 Land Size

Average land sizes in the county range from 0.4-2ha making the county predominantly small holder farmers accounting for over 90% of land holdings. Medium and large scale institutional farms range from 3-50ha.

Population pressure will still remain a significant characteristic in Bungoma County. This naturally leads to the exhaustion of land and its fragmentation will continue being common and as such leading to extreme poverty.

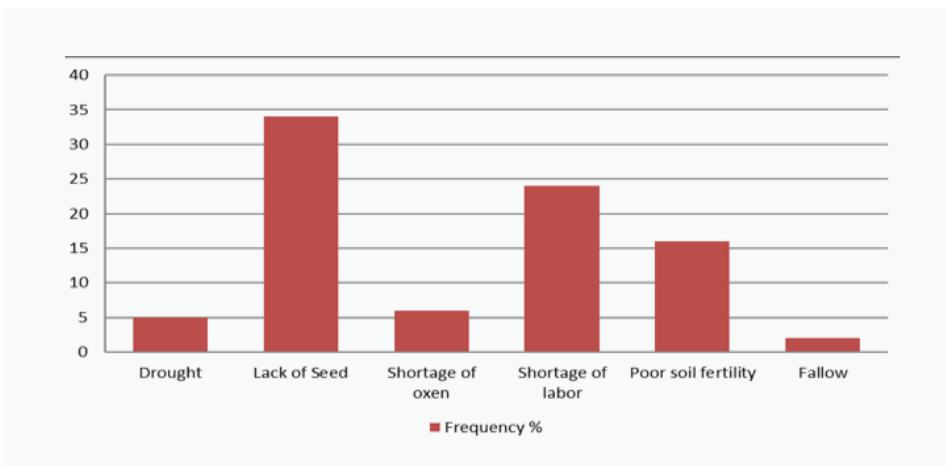
Average land Size	Agro climatic zone	Areas
2 ha/5Acres	High Altitude	Mt. Elgon, Tongaren, Kimilili
1 Ha/ 2.5 Acres	Middle	Kabuchai, Sirisia Webuye East
1 Ha/ 2.5 Acres	Lower	Bumula

6.5.7 Agriculture technologies

Labor productivity must be increased through mechanization of farm work as far as possible. Majority of the farmers use oxen for farming . As indicated in the graph below, the use of tractors in farming remains significantly low as compared to oxen and manual labor. This greatly reduces the ability to intensify farming.

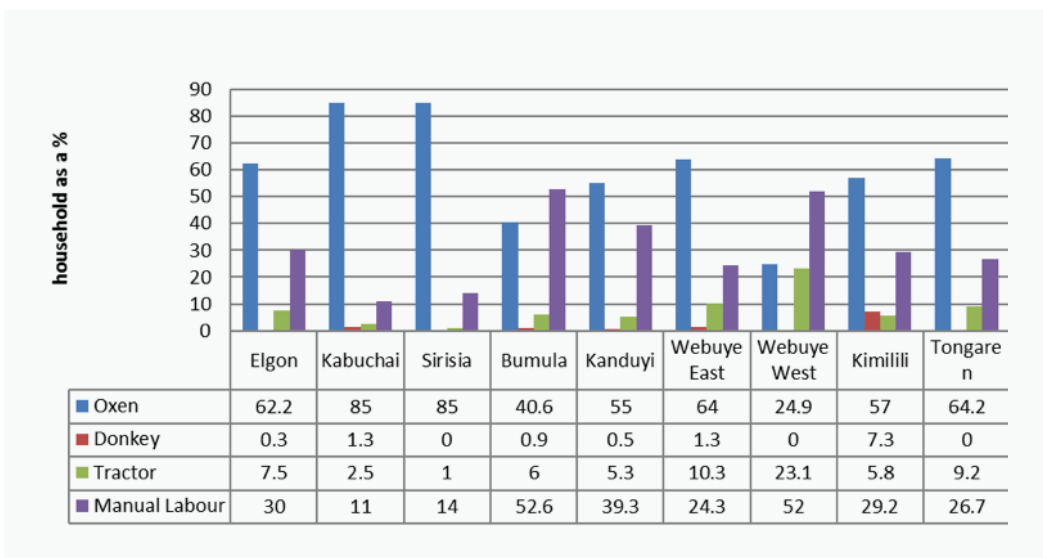
This can be attributed to a number of factors which include: the small sized farms, lack of agricultural technology, level of farmer knowledge on available mechanisation as indicated in the charts below

Chart 19: Reason farmers fail to plough or not to plough on time



Source: Baseline Survey Report, 2014

Chart 20: Agriculture technology used in farms per Sub County



Source: Baseline Survey Report, 2014

TECHNOLOGY	ADVANTAGES	DISADVANTAGES
OXEN	Steadier pulling Good for heavier task like ploughing hard or wet grounds	Less ground coverage
DONKEY	Steadier pulling Good for heavier task like ploughing hard or wet grounds	Less ground coverage
TRACTOR	Timely Increased productivity	High costs
MANUAL LABOUR	Time consuming Delays Masterfully	Cheap in costs

6.5.7 Marketing and Processing

Table 15: Market prices based on chwele market

Type of crop	Price	Production		Total income from crop 2014
		2013	2014	
sugarcane (based on Nzoia production)	3600/50 kgs		302,000 T	21744000
Maize	3,200/90 kg bag	3060000 MT	3340000MT/ 37,111,111 bags	118,756,000,000
sorghum	4,800/90kg bag	23,794 bags	20,500 bags	98400000
finger millet	4,800/90 kg bag	28,850 bags	24,915 bags	119592000
Rice	6,750/90kg bag	195 bags	160 bags	1080000
wheat	2,7000/ba	830 bags	940 bags	2538000
beans	4,900/ bag	434,971 bags	527,050 bags	2582545000
green grams	8333/kg	920 bags	1,030 bags	8582990
sweet potatoes	50/kg	25, 840 MT	32, 510 MT	1625500000
cassava	40/kg	3,960 MT	4,330 MT	173200000
arrow roots	90/kg	620 MT	670 MT	60300000
Soya Beans		280 bags	350 bags	
Ground nuts	120/kg	590 bags	650 bags	7020000
Oil Palm		980 MT	580 MT	
Sunflower	10/kg	1,840 (50kg bags)	2,150 (50 kg bags)	1075000

Passion fruit	55/kg		680 MT	37400000
banana	90/kg	34,000 MT	35,850 MT	3226500000
pineapple	90/kg		1,780 MT	160200000
Pawpaw	30/kg		280 MT	8400000
Tomatoes	90/kg	19,300 MT	20,030 MT	1802700000
Irish Potatoes	2500/90 kg bag	7,290 MT	8,570 MT	238055555.6
Bulb Onions	80/kg	23,940 MT	27,960 MT	2236800000
Total Income from crops				131,145,888,5461

Source: Adopted from the Directorate of Agriculture, Bungoma County, 2015

6.5.8 Value Addition

Bungoma County is reflective of Kenya's agriculture based value addition, it is poorly developed and where it exists, the production is in small scale. The County government is promoting the following value chains: maize, banana, tomato, Irish potato, tea and coffee. The following is an inventory of attempts at value addition in the county.

Table 16: Inventory of Agri based value addition in the County

Organization	Location	Value addition details	Comments on progress
Creadis Agro business Development firm	Kimwanga-Bumula	Orange sweet potato chippings and flour	Progress is limited to 300kg per day due to the small size of the drying area
Kimilili Tomato factory	Kimilili Town	Intended to produce tomato paste	A CDF stalled project Although the factory building has been complete since 2010, operations have not began
Tomato cooling and factory in Sirisia		Intended to produce tomato paste	At construction stage Operations have not began
Oil Palm	Lwakhakha	Oil palm production	Operations have stalled The CBO lacked the adequate funds to pay rent.
Others include various posho mills			

Source: Adapted from field work, 2015

6.5.9 Extension Services

Provision of extension services occurs on demand with the government being the provider of extension services. Based on the baseline survey, 2014 only 28% of the population had received extension services in the year 2013. Approximately 60% of the population felt that the services were not useful in improving their agricultural production. Further to the government being the primary provider of extension services, the following is a list of likeminded civil and central government extension service providers:

Table 17: Extension services Bungoma

Organization	Type of organization	Extension service provided
Creadis	NGO	Agri business Value Addition (sweet potato plant)
V.I. agro forestry	NGO	
One acre fund	NGO	
FOA	Multilateral Agency	Oil Palm research and promotion integrated production systems (PRODS/ PAIA)
Nzoia Sugar factory	Government	Sugar production
Kapsara Tea factory	Government	Tea adoption and promotion Tea demonstration
Coffee Research centre	Government	Coffee demonstration and extension
Tea research institute	Government	Tea research and training

Source: Adopted from the directorate of agriculture, Bungoma County 2015

Challenges facing the provision of extension services

1. Low funding of the programme
2. Limited number of staff at the County level additionally, the workforce is rapidly ageing
3. This leads to a low capacity to cope with the demand for extension service provision
4. Limited machinery and equipment that inhibits staff mobility

6.5.10 Irrigation

Irrigation has the potential to increase a single small holder farmer's income by four times in a single production cycles. This is mainly attributed to its focus on high value crops, cropping intensity and the all year round production.

On the other hand, irrigation is a high net consumer of water and given that Kenya is a water scarce nation, competition for the scarce resource is high.

Despite its huge potential to increase the population under irrigation, the County of Bungoma has three operational irrigation schemes and majority are stalled. This has mainly been attributed to a shift of funding priorities with the shift from national to devolved government structures. The following table lists all major irrigation projects in the county:

Table 18: Operational irrigational projects

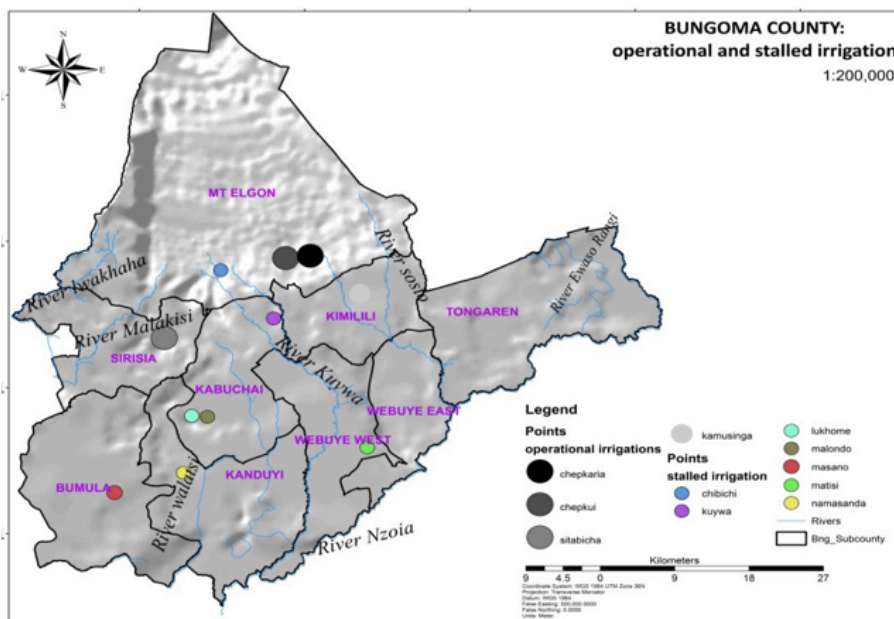
Irrigation project	Location	River	Capacity	Remarks
Kamusinga	Kimilili	R.Kimilili	30 ha and expanding to 60 ha 30 farmers	Sprinkle irrigation water flows by gravity Mostly high value crops
Sitabicha	Sirisia	R. Malakisi	Has 20 farmers	Sprinkle irrigation High value horticultural crops
Mt. Elgon	Chepkui Chepkaria	R. Kimilili	30 ha 30-40 farmers	Funded by west Kenya community and flood mitigation programme High value crops

Stalled irrigation projects include:

Stalled irrigation projects include:

1. Kuywa Irrigation project in Chwele/Kabuchai abstracting water from R.Kuywa, intake works had been undertaken
2. Musano irrigation project in Bumula a wier had been constructed
3. Namasanda irrigation project in Kanduyi abstracting water from Namasanda dam
4. Matisi Irrigation project in webuye west to help in irrigation and drainage
5. Nalondo/sitila drainage project in Kabuchai and Nalondo ward to help in drainage
6. Kamusinga in Kimilili to be drained by gravity and irrigate 60 ha.
7. Chibich irrigation in Mt.Elgon covering 80 ha
8. Lukhome irrigation in Kabuchai

Map 55: Stalled and operational irrigation schemes Map



Prepared by: Two Ems Associates, 2015

There is a planned irrigation project in Upper Nzoia of large scale purposes being undertaken by the national irrigation board. This project will cover the sub-counties of Tongaren, Webuye East and West.

Presently the county government is concentrating on the rehabilitation (removal of silt, repairing of drainage works) of dams in the following locations:

- Namasanda in Kanduyi
- Namwela in Sirisia
- Kapkara in Sirisia
- Butongedama
- Mbakalo dam
- Brigadier dam
- Magemo in webuye East

Challenges in irrigation

1. Water scarcity and competition with domestic water use
2. During the rainy season results to flooding which in turn destroys the weirs
3. Lack of an irrigation policy has seen little funding for irrigation projects across the country. Further, The National irrigations board Act is being reviewed to allow the board’s expertise to be applied to small scale irrigation projects.

6.5.11 Untapped Agricultural Potential

The following diagram indicates some major crops that have potential to be grown in Bungoma County:

HORTICULTURE AND VEGETABLES
Mt. Elgon and Tongaren sub-counties have potential for horticulture growth. Tongaren is currently producing tomatoes while Kopsiro has an existing market structure for horticulture produce.
COFFEE
<ul style="list-style-type: none"> • Can earn a farmer Ksh 267,000 P.A. if grown correctly • The presence of the coffee research centre adds a competitive advantage
LEGUMES (SORGHUM, GROUNDNUTS AND SOYA)
<ul style="list-style-type: none"> • There is an up-coming groundnut factory in Bumula to help in value addition • Malakisi has a soya factory
OIL PALM
<ul style="list-style-type: none"> • Can produce cooking oil • Kenya imports crude palm oil at \$750 per tonne from Malaysia

6.6 LIVESTOCK

6.6.1 Introduction

Livestock development is one of the main economic activities of the Kenyan economy directly contributing 43% to the agricultural sector, according to the IGAD Livestock policy Initiative.

Livestock industry in Bungoma is made of cattle (dairy cows), sheep and goats, pigs, indigenous and commercial chicken, donkeys and beehives.

Chart 20: livestock population

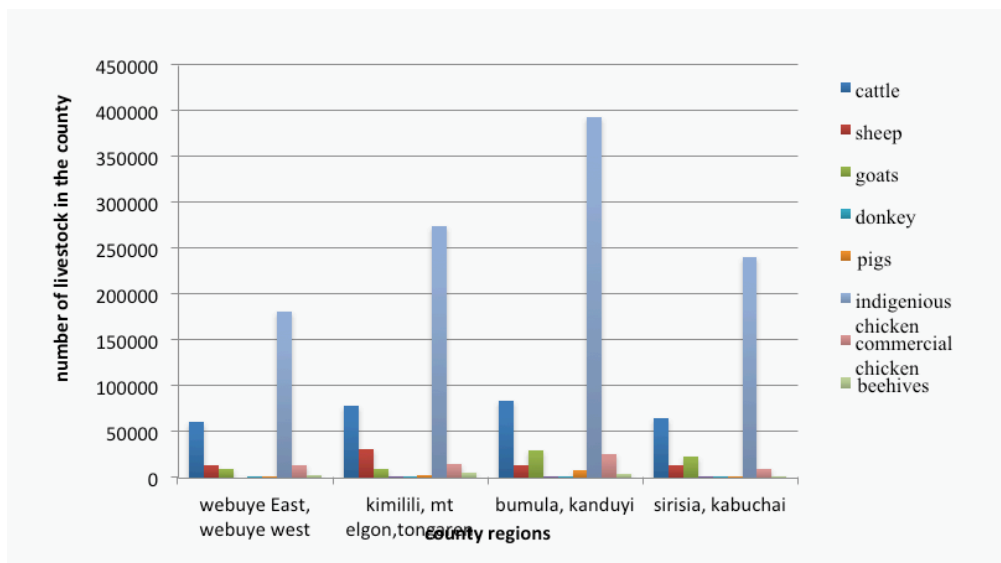
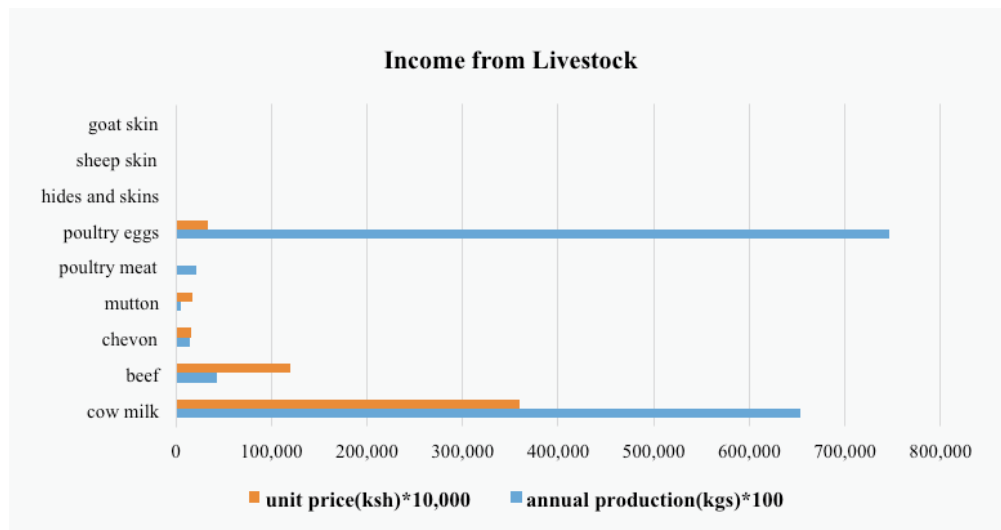


Chart 20: livestock population

6.6.2 Contribution to the County GDP

Bungoma County is made up of 9 sub counties where livestock and crop growing in general contributes to 60% of the County GDP. Livestock contribution is as shown in the graph below:

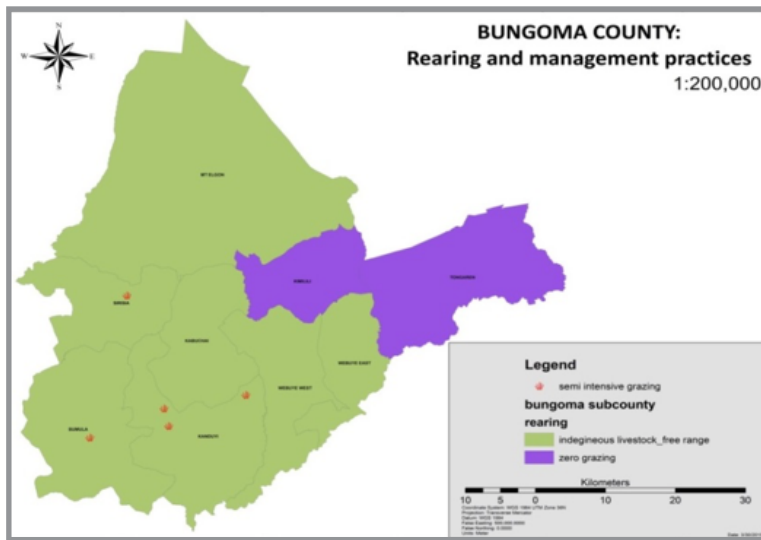
Chart 21: Livestock income



Source: Bungoma Ministry of agriculture, livestock and fisheries, 2015

6.5.3 Rearing and Management Practices

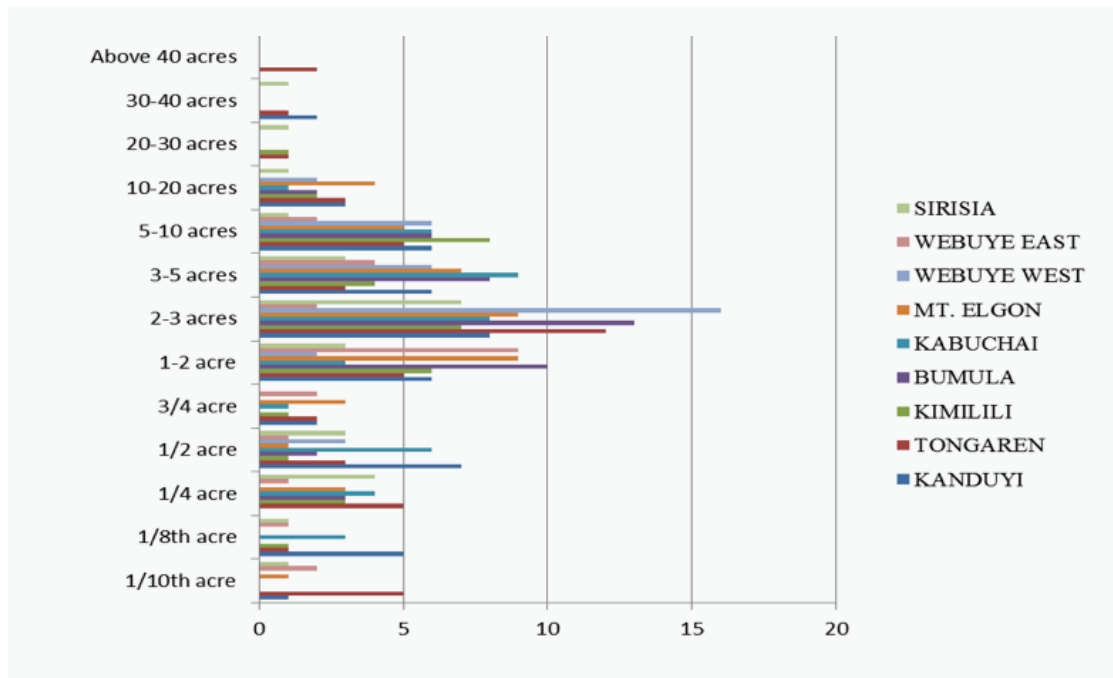
Map 56: Rearing and management practices



Zero grazing- dairy farming where cattle are fed with cut grass
 Free range indigenous livestock- improved products quality
 Semi intensive grazing – moving livestock from one range to another following forage supply

Prepared by: Two Ems Associates, 2015

Chart 22: Land sizes per Sub County



Source: Field survey, 2015

Average land sizes in the county range from 0.4-2ha making the county predominantly small holder farmers accounting for over 90% of land holdings. Medium and large scale institutional farms range from 3-50ha.

Population pressure will still remain a significant characteristic in Bungoma County. This naturally leads to the exhaustion of land and its fragmentation will continue being common and as such leading to extreme poverty.

6.5.4 Level of Extension Service

Extension services are imperative for the dissemination of knowledge and new technologies. They are needed to be able to transform from a subsistence economy to a commercial economy.

Bungoma County has a vast of extensions which include both private and public sectors.

Table 19: Extension services

NAME OF EXTENSION	FUNCTIONS
County officers to ward levels	
USAID	Processors of dairy
GIT	Training on dairy
Kenya Dairy zone	Regulatory body
KALRO	
CAGRIC	Research institute
Techno server	Capacity building

Source: Bungoma Ministry of agriculture, livestock and fisheries, 2015

Livestock extension challenges.

- Insufficient number of staff
- Transportation

6.5.5 Marketing Channels

Marketing of livestock and livestock products is critical to increasing productivity and commercialization. In bungoma county marketing has been done through development of infrastructure system such as cooperatives and land markets though it faces several challenges due to some cooperatives being unexploited. The only cooperative is Kitinda milk processing industry in Kanduyi which is struggling to remain operational

Table 20: Potential milk Marketing channels

MARKET	LOCATION	FUNCTION
Kitinda	Kanduyi	Milk collection Milk processing
Kikayi	Sirisia	Milk production Milk processing
Mt Elgon	Kaptama	Milk collecting
Ndalul	Ndalul	Milk Collection
Naitiri	Tongaren	Milk Collection Milk Production Milk Sale
Kopsiro	Mt elgon	Milk Collection Milk sale
Chwele	chwele	Chicken factory for slaughter and sale
Mbakalo	Tongaren	Animal Auction rings

Source: Bungoma Ministry of agriculture, livestock and fisheries, 2015

Livestock marketing challenges in Bungoma County

- There are only 8 active cooperatives for collection of milk for local sale and processing and they are presently underperforming.
- Un-exploitation of the available cooperation

6.5.6 Diseases Prevalence

A number of diseases plague livestock in this county; this is influenced by vegetation, ecology, changes in climate among others. Livestock diseases include: FMD, ECF, and faul typhoid, new castle for poultry, SD and rabies for dogs.

Treatment

In the efforts of curbing these disease's the county government has ensured that it has deployed an OP officer in every ward and has collaborated with other private practitioner's. They have ensured that there is no charge in case of outbreaks and just a small fee being paid for any treatment.

Treatment methods used include:

- Vaccination
- Treatment
- Quarantine

Climate change and livestock

The changes of climate as experienced in the county have led to:

- Fodder production- natural grass has disappeared and farmers have to look for other alternatives
- Reduction of stock opting for the exotic breeds
- Selling of the animals

Measures to help adapt

- Creating awareness on the impact of climatic changes
- Teaching on animal husbandry

6.5.7 Bee Keeping

Bee keeping is mostly done in the Mount Elgon areas but also among farmers. It produces an annual production of 33,000 Kg which amounts to 8.3 million Kenya shillings. Bee products are marketed in Nairobi and also sold raw at local level.

For the products they use three types of bee hives; loge bee hive, Kenya top bar and log sloth but the latter is preferred due to ease of operation and potential.

Challenges faced in bee keeping

- Lack of awareness in bee keeping as a commercial venture
- Lack of technology and extension on beekeeping

6.5.8 Fishing

Bungoma County has aqua culture which is the largest in fish production who have stocking in fish dams. Multiple initiative such as ESI have been introduced to support and educate Bungoma people with regard to fishing.

As per 2013, production levels for fish amounted to 85, 700kg. There are 3542 ponds covering on million sq metres with 2100 farmers. The types of fish produced are Nile tilapia, catfish and turkana fish which are majorly sold in local markets.

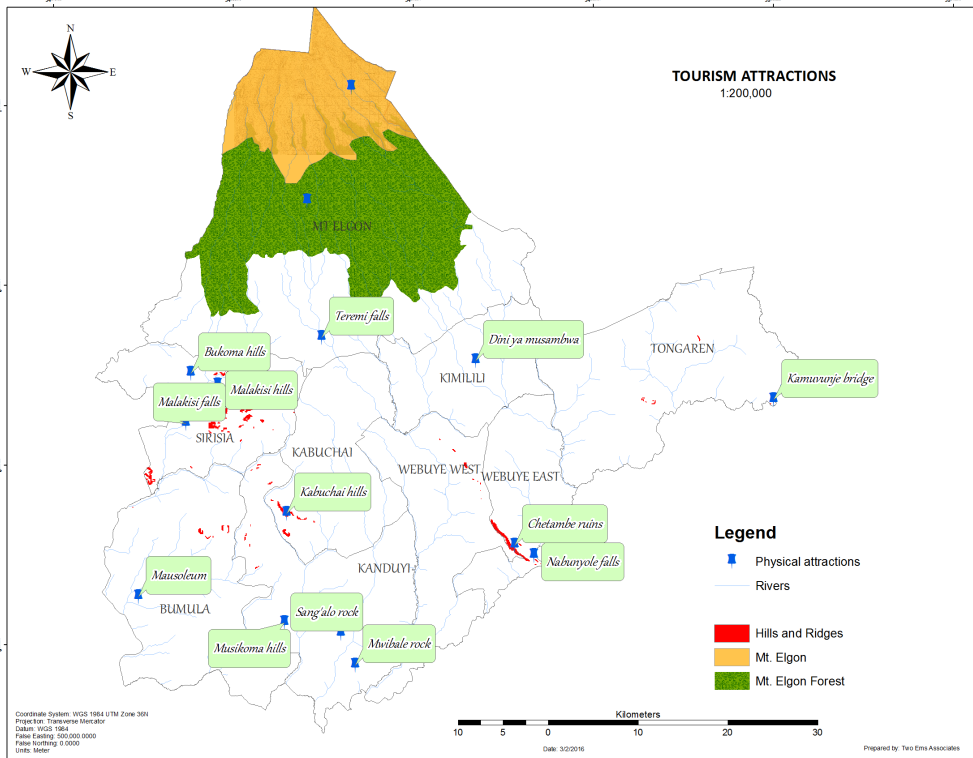
Challenges facing fishing

1. High cost of fish feeds
2. Quality of fingerlings
3. Predators
4. Limited staff

6.6 TOURISM

Bungoma County has many tourist attraction sites and the potential of tourism in the county is yet to be fully exploited. Tourism potential is analysed on the basis of the physical attractions and tourism activities within the attractions and elsewhere.

Map 57: Physical attraction site



Prepared by: Two Ems Associates, 2015

Sector Contribution to County GDP

The tourism subsector in Bungoma according to the directorate of Tourism has no quantified contribution to the GDP other than the trickle down from hoteliers.

6.6.1 The Tourism Industry

Tourism in Bungoma has not been exposed. Bungoma County would have ideally belonged to the Lake Basin Tourism Circuit. The county government has taken initiatives to promote the sector which include:

- A charter to introduce a national park within the County
- Measures to ensure cultural conservation which include: building a cultural museum, preparation of a cultural documentary, organisation of the Teso cultural festival and exhibition

Further to the above measures, the following are the key challenges facing the sector:

- Limited funding towards marketing and promotion
- There is a perception challenge by the private sector which has meant that tourism has not been taken up
- The hospitality industry and supporting industries are not fully developed to allow for mass marketing; indeed there is not a single tour operator exists within the county

6.6.2 Tourism Potential Inventory

a) Physical attractions

The main tourism attractions in Bungoma County include:

- a) Mt.Elgon National Park, its caves and waterfalls
- b) Mount Elgon national reserve and Mount Elgon forest Sanctuary
- c) Nabuyole falls on Nzoia River near Webuye town,
- d) Malakisi falls
- e) The historical sites; Chetambe fort ruins.
- f) Namakanda Rock in Sangalo
- g) Teremi falls in Mt. Elgon
- h) Elijah Masinde shrines

Other tourism attractions sites include Nyamachanja mausoleum, Mwhikupo falls, Rumboka falls among others.

Plate 11: Tourist attraction sites



Mt. Elgon national reserve



Nabuyole Falls



Mwibale rocks



Chesimo- Elephant Maternity



Traditional Bukusu Circumcision



Chetambe Fort Ruins site

b) Tourism activities

The main Tourist activities that take place in the County include: Game Viewing around the Mountain, Bird watching and Viewing the mountain, Camping, Excursions and Nature walks in Mt. Elgon National Park. There is Sight-seeing in Nabuyole falls. Bungoma County is the only county that has maintained the original traditional circumcision ceremony. It attracts tourist especially in the month of august and December.

c) Tourism Amenities

There are no lodges or tented campsites in Mt. Elgon National park. However, there is KWS Self – Catering accommodation and the park has numerous Camping Facilities both to the public and special campsites that is the salt lick camp site.

The County has a few notable hotels that provide good rooms and facilities such as conferencing facilities, Spa and massages, Fitness hall, Swimming pool, Night club, Bar and restaurant, Spacious gardens. Some of these hotels are Tourist Hotel, Hotel Rosswood and Bungoma Countryside Hotel and the County Comfort Hotel.

6.7 TRADE

6.7.1 Overview

Trade and industry is an important economic activity in Bungoma. The subsector employs approximately 346,430 people with 287,110 being juakali traders, wholesale and retail trade. This constitutes about 17% of the population of the County. This however is indicative of an industry that is predominantly agricultural with little value addition occurring. There indeed lies great potential herein. The Small and Medium Enterprises (SMEs) have the potential to contribute significantly to economic growth and poverty reduction (through increased production and employment); Kenyan SMEs contribute only 20% of GDP even when contributing about 80% of employment. The most prominent form of SMEs in the County are traders, both wholesale and retail, boda boda/cyclist operators, processing, agro trade and hotel industry amongst others.

Sector Contribution to County GDP

Data on the SMEs contribution to County GDP is rarely documented, but there is a lot of untapped potential for development in this sector.

6.7.2 Private Sector Development:

Private Sector (PS) refers to the sector of the economy that is privately owned, either by an individual or a group of individuals, in any sector. This includes micro-small, medium and large enterprises, sole proprietors, incorporated companies and groups. PS Enterprises are the entities that are used to mobilize available services and to direct them towards the provision of the goods and services that the market demands (Information Economy Report 2011, UNCTAD).

Universal Roles of Private Sector:

The private sector is a critical component in addressing development challenges such as poverty, food insecurity climate change, through its contributions in many areas, including:

- Growth -Private firms and entrepreneurs invest in new ideas and new production facilities.
- Jobs -In most counties, the private sector is a major component of the county income and a major employer and creator of jobs. Over 90% of jobs in the countries are within the private sector.
- Poverty reduction and inclusive growth -According to extensive research, economic growth contributes significantly to poverty reduction and to higher living standards for the poor.
- Service Delivery - Besides directly contributing to the economic growth, poverty reduction, and creation of jobs, the private sector also provides essential services such as infrastructure, which include; transport, telecommunications, water, power, health, education, and finance, which are important to growth and to improving people's lives
- Addressing food security, climate change, and environmental sustainability Critical public issues related to food security, climate change and environmental sustainability also depend on the successful operations of private sector firms—as they are the major operators of businesses that produce food, generate greenhouse gas emissions, and affect the environment. Thus meeting the food challenge highly depends on improving the operations and productivity of agricultural firms. Addressing climate change requires energy efficiency in businesses and firms that can develop technologies for low carbon power; and environmental sustainability requires firms that both use and supply appropriate environmental technologies.
- Taxes - the private sector and its employees, are the majority providers of the taxes that support government operations

The table below is a summary of the subsector in the County:

Table 21: Bungoma county trade fact sheet

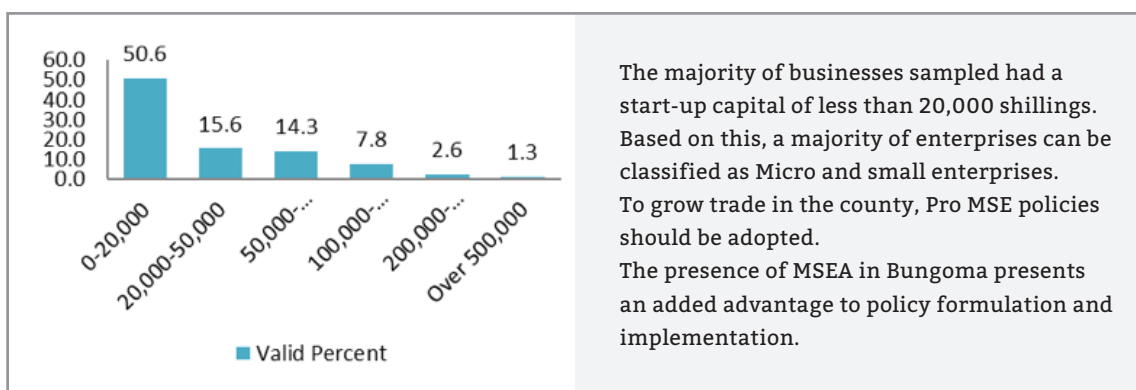
Information Category	Statistics
Trading centers (No.)	60
Registered Retail traders (No.)	123,780
Registered wholesale traders (No.)	12,600
Industry	
Manufacturing industries (Webuye pan paper and Nzoia sugar industry)	
Total Production by industries Sugar(Tonnes)	60,000
Processed paper (Kgs)	85,000
Total Consumption (Sugar)	150,000
Paper	230,000
Surplus/deficiency (Sugar)	90,000
Paper	145,000
Bakeries	15
Juan Kali Associations	86
Juan Kali Artisans	150,730
Commercial Banks	10
Micro-finance Institutions	3
Building Societies	2
Village banks	2
Insurance Companies/branches	6

Source: Trade Department Bungoma County, 2015

1. Capital and Financing

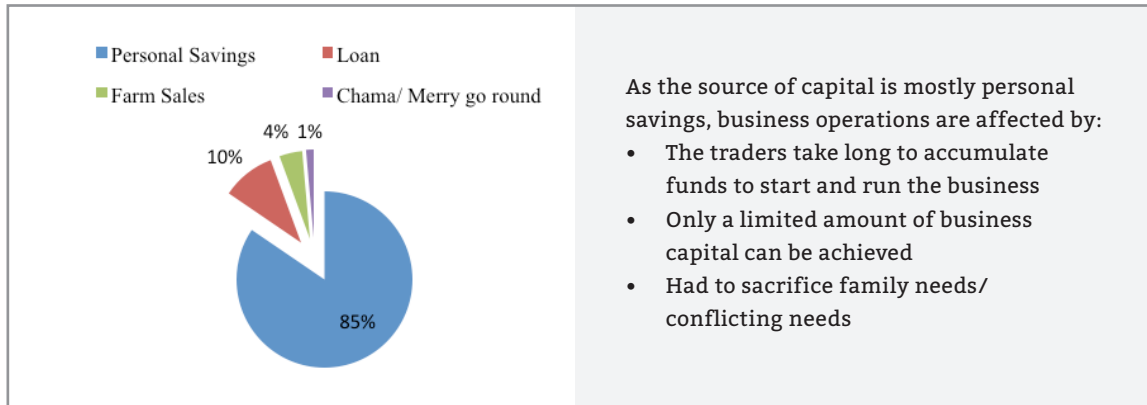
The chart below shows the capital used to start a business:

Chart 23: start-up capital



Source: field survey 2015

Chart 24: Sources of business capital



Source: field survey 2015

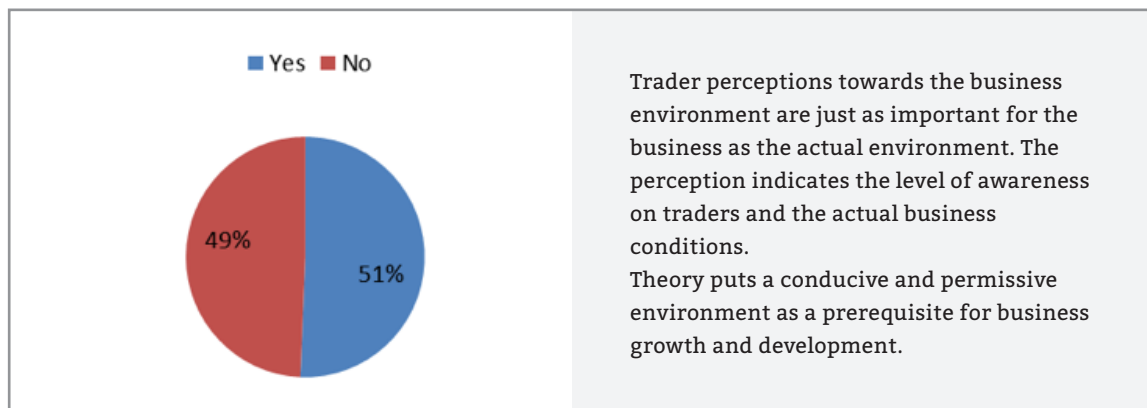
This implies that microfinance institution are just as popular as banks when it comes accessing credit. Further to the challenges encountered in accumulating savings and capital, borrowing was a limited option because:

- High interest rates
- Long period to repay the loan
- Difficulty in accessing a guarantor
- No access to credit facilities
- Long period to get loan

2. Business Environment

According to the County Government of Bungoma, in as far as trade goes in this county; there is lack of laws and regulations to guide trade due to lacks of a clear-cut policy to regulate trade. The department is working on a trade policy to guide trade matters and it is also encouraging and supporting PPP.

Chart 23: start-up capital

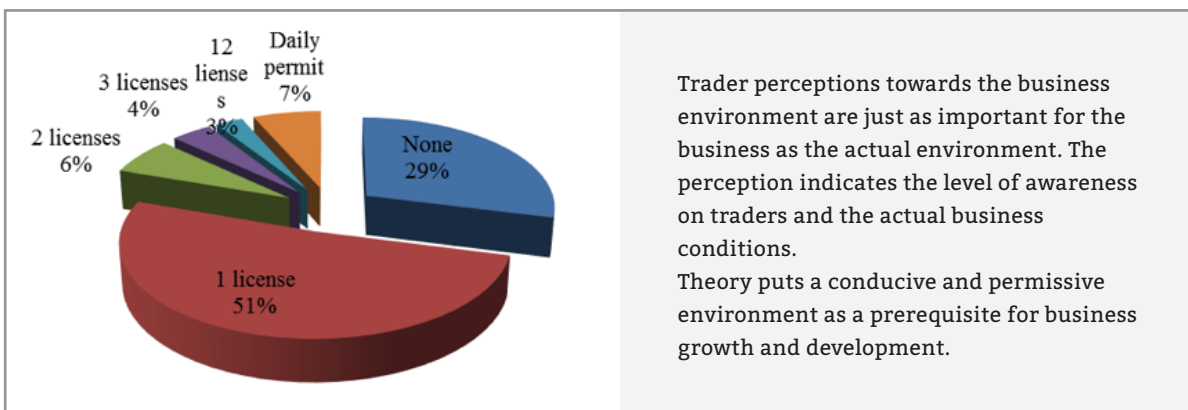


Source: field survey 2015

Reasons why the environment is conducive	Reasons why the Environment is not conducive
<ul style="list-style-type: none"> • Markets are close • Its profitable • No competition • Good profits from strategic location • Daily returns • Security 	<ul style="list-style-type: none"> • Seasonality/ non vibrancy of business • No markets • High charges from the county • Harsh environmental conditions from open air market • Poor road conditions • Struggle for business • Inadequate capital • Non receptiveness of new entrepreneurs • Harassment by police/ council

3. Business licensing

Chart 26: Number of licenses



Source: field survey 2015

Among those without licenses, it appears that most are aware the licenses they lack and the reasons offered for lack of permits include: the high costs, the substitution of licenses with daily permits, and the lack of information. This is as indicated below:

Chart 27: Reasons for not having a licence per license

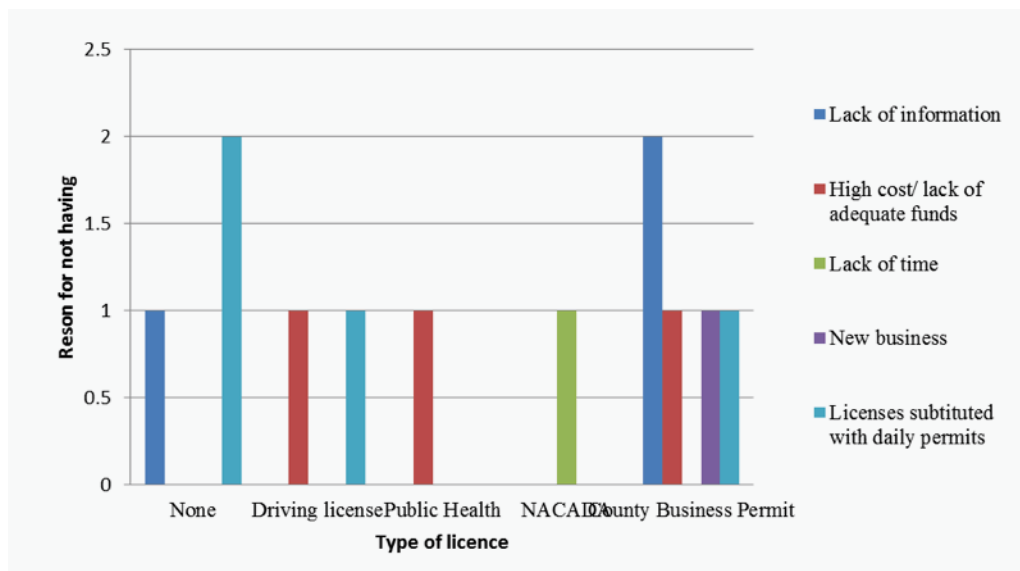
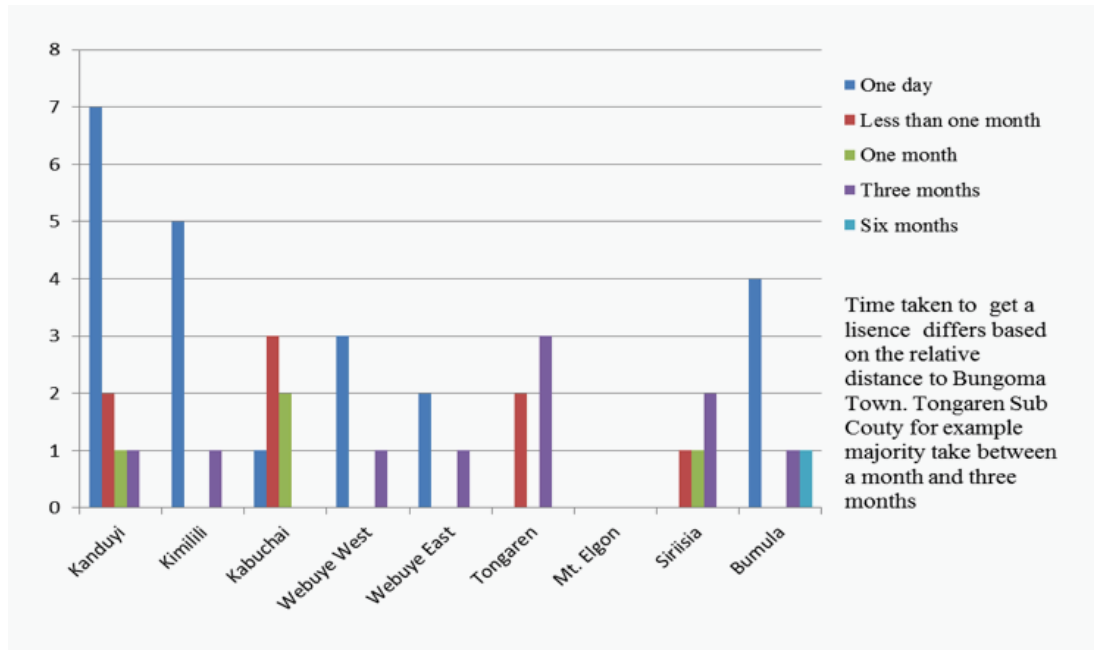


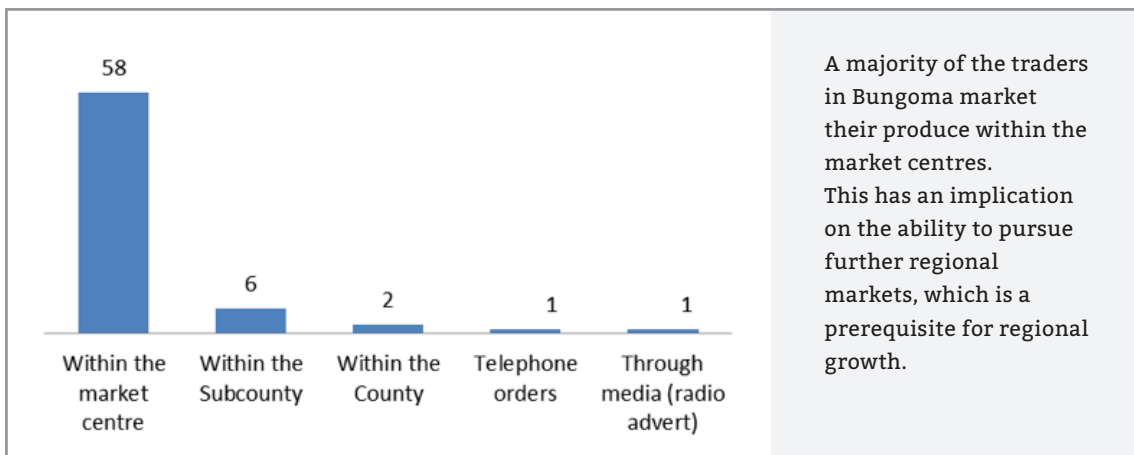
Chart 28: Time taken to get a permit



Source: field survey 2015

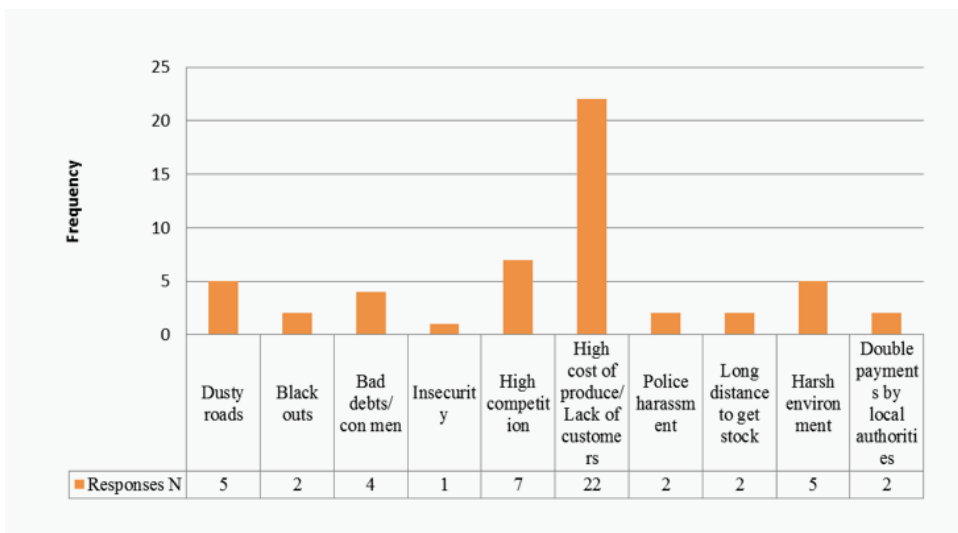
4. Access to Markets

Chart 30: Means of Marketing



Source: field survey 2015

Chart 31: Challenges in marketing services



Source: field survey 2015

The biggest challenge in marketing experience in the county is the high cost of inputs and the poor infrastructure including roads.

5. Physical and social Infrastructure

Asked whether they business people had access to the following infrastructure services, the results are as indicated below. Of notable concern is that security, electricity and water are the least available infrastructure facilities.

Challenges identified in trade

- No markets
- Seasonality/ non vibrancy of business
- Poor road conditions
- Inadequate capital

Suggested Solutions for provision of business infrastructure:

- i. Reduce the number of power black outs
- ii. Dig boreholes to improve water
- iii. Improve mobile networks
- iv. Improve street lights
- v. Building public toilet
- vi. Piped water
- vii. Build market structure
- viii. Improve roads

6. Trade Regulations

The County government is trying to come up with regulations such as loan management. The department in conjunction with the County government is also working on a trade policy in the current strategic plan to guide trade matters Further, The department for trade is working on a trade policy to guide trade matters and it is also encouraging and supporting Public Private Partnerships.

7. Challenges in Trade promotion

As far as trade goes in this county, there are law and regulations issues because we do not yet have a clear cut policy to regulate trade. The traders in Bungoma County are also in dire need of capacity building since their scope of knowledge on trade matters is very narrow.

6.8 INDUSTRY

The industrial base of Bungoma consists of four broad categories of industry:

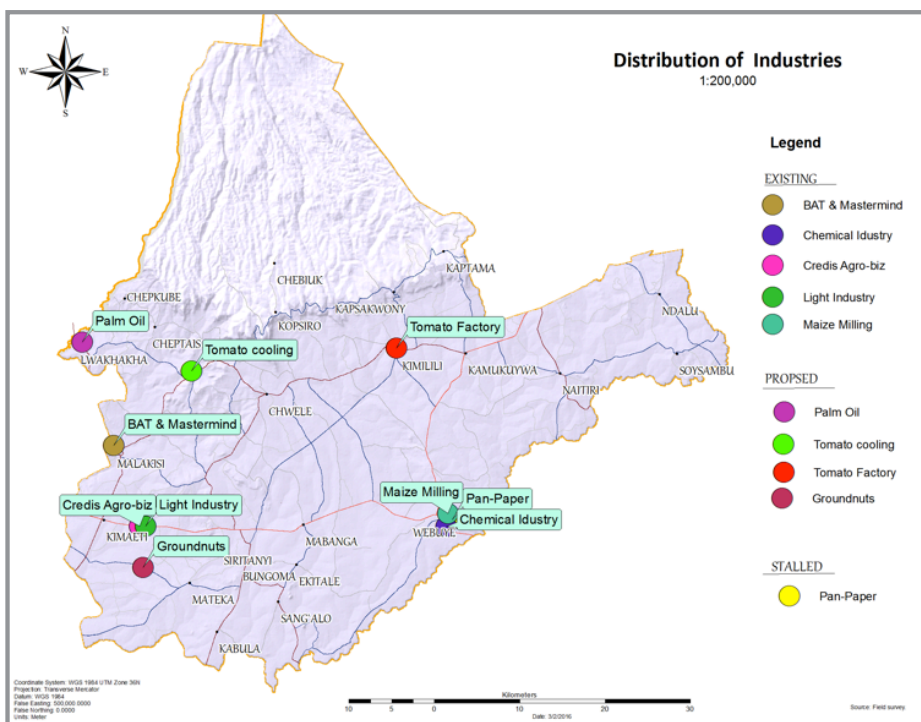
1. Urban-based industries
2. Rural-based-
3. Home-based
4. Resource-based industrial

Drivers of industrialization in Bungoma

- a. Strategic location-** The county is the gateway to East Africa through Busia and Lwakhakha border points and it is situated along the northern corridor
- b. Raw materials-** Majority of the industries are influenced by the presence of rich agricultural produce
- c. Existing infrastructure-** In Webuye, the laid down infrastructure in terms of road network, sewer & water systems and housing attracts industrial promotion in the area.
- d. Regional markets**

The existing industries in Bungoma are as displayed in the map below:

Map 58: Existing Industries Map



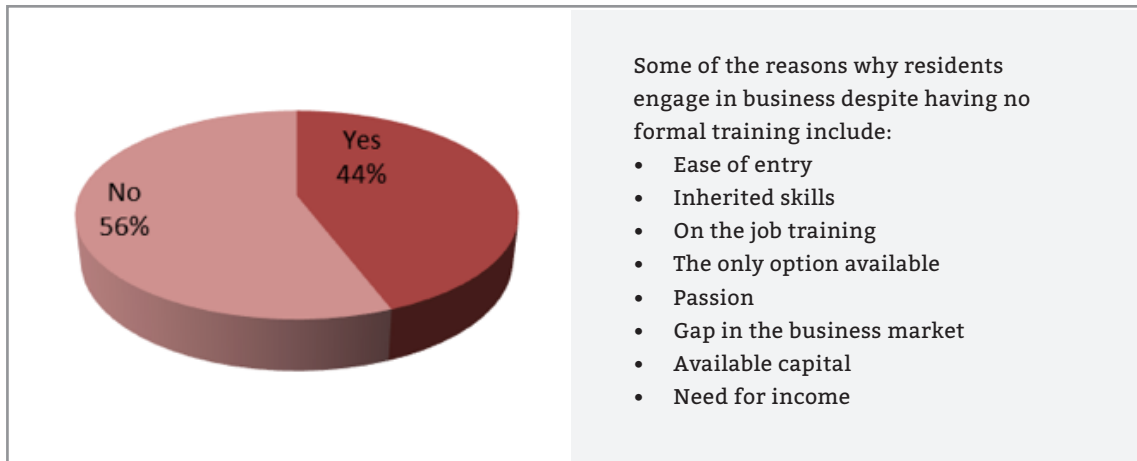
Prepared by: Two Ems Associates ltd, 2016

The industrial towns in the County include Webuye, Malakisi and Kimilili.

6.9 KNOWLEDGE INDUSTRY AND ICT

The main economic activities include farming and commercial activities. However, the people lack the advanced technologies know-how and training required to facilitate smart agriculture practices and business management. The chart below illustrates that majority of the sampled population do not have business training required to run a business enterprise. As for the marketing aspect, entrepreneurs require capacity building. There's a great disconnect in the value chain and awareness creation is required for producers to be informed.

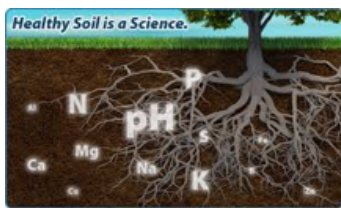
Chart 29: Do you have formal business training



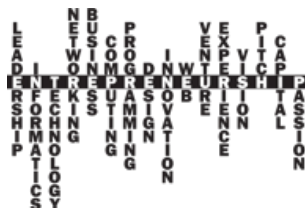
Gap identification

Owing to this fact, there is need for tertiary institutions within the county to offer training in the following courses in order to fill the human resource gap:

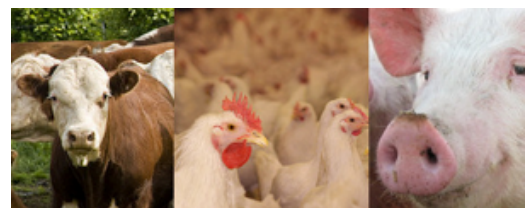
Plate 4: Gap in Tertiary Education



Soil analysis



Entrepreneurship



Animal Health

6.10 POTENTIALS/ OPPORTUNITIES AND CONSTRAINTS

Sector	Potential/Opportunities	Constraints
Crop & livestock	<ul style="list-style-type: none"> • High Population Density Has The Potential To Be Tapped For Agri-Based Industrialization • Close Proximity Of The County To Regional markets • Establishment of agro-based value addition industries • Potential for growth of horticulture, legumes, coffee crops. 	<ul style="list-style-type: none"> • Climate Change Threatens The Sustainability Of Rain Fed Agricultural Productivity
Tourism	<ul style="list-style-type: none"> • Investment in: <ul style="list-style-type: none"> - Sport tourism- cable cars between high hills, sporting car tracks - Eco-tourism/safari tourism-Wild walk tracks in Mt. Elgon forest, mountaineering tracks - Cultural tourism- Promotion of the bukusu circumcision ceremony and cultural sites • Construction of lodges, campsites and hiking tracks around Nabuyole Falls • Development of Cheptais, Kapsakwony and Webuye as tourist towns through provision of tourist amenities • Promote Tourism Through Regional Integration Of Counties; Tourism Circuits • Tourism Promotion Has A Two Faced Benefit: Avenue For Economic Growth And It Encourages Environmental Conservation 	<ul style="list-style-type: none"> • The Sector Might Rely On Synergies Among Counties Which May Be Difficult To Foster • Limited funding towards marketing and promotion • There is a perception challenge by the private sector which has meant that tourism has not been taken up • The hospitality industry and supporting industries are not fully developed to allow for mass marketing; indeed there is not a single tour operator exists within the county
Trade	<ul style="list-style-type: none"> • MSEA To Govern Policy Formulation And Implementation • Poor Infrastructure, High Cost Of Licensing And Low Turnovers Discouraging Vibrant Growth Of SMEs • Lack Of Rules And Regulations To Guide Traders Due To Lack Of Clear Put 	<ul style="list-style-type: none"> • Poor Infrastructure And High Cost Of Inputs Making Traders Reluctant To Invest In The County
Industries	<ul style="list-style-type: none"> • Need to develop the industrial base of the County with the following priority areas: <ul style="list-style-type: none"> - Agro-industrial processing - Paper and Paper manufacture - Meat and dairy - Green Energy • Investment in Business development services for private sector facilitation into industrial zones. • Need for establishment of the County Industrial Park 	<ul style="list-style-type: none"> • Lack of a County Industrial Development Policy. This has deprived the sector of industrial development guidelines as well as identifying areas of industrial investment • Lack of documentation of sector contribution to County's GDP • Poor management of existing factories • Inadequate public infrastructure like sewer, solid waste management and water

CHAPTER SEVEN: HUMAN SETTLEMENTS

7.1 OVERVIEW

Human settlements are concentration of activities and people on space. They play an important role as being agents of economic growth by providing favorable locations for productive investment. This chapter reviews the existing human settlement structure of the County in a bid to lay the basis for the establishment of functional human settlements. These functional human settlements provide a rationale for the location of physical development in urban and rural areas in a coherent manner.

To achieve this objective, the chapter will have an analysis of: the existing Settlement Patterns delineated in terms of; Population Distribution, Function and Level of service provision, Human Settlement trends and Human Settlement Projection. In the end, it will identify a projected settlement structure based on the push and pull factors indicating areas where policy can intervene to achieve functionality.

This chapter has the following components: Analysis of the human settlement structure in Bungoma, Urban settlement hierarchy, trend and project analysis, linking rural and urban areas and a look at the housing structure.

7.2 COUNTY HUMAN SETTLEMENTS STRUCTURE AND STRUCTURING ELEMENTS

Human Settlements in Bungoma County are structured by:

- a) Administrative and commercial functions
- b) Transport based settlements- Presence of the A104 and A1 roads within the county has encouraged the development of linear settlements in the area. This provides a good regional trade and commercial transit to Uganda and local linkage for transportation of goods and services within the county
- c) Resource-Based Settlements- agriculture being the main resource base of the county, majority of the residents reside in farmlands dispersed across the County.
- d) Commercial centers: These centers of trading emerge to facilitate trading, most exist due to proximity to raw agricultural produce and the need to sell and buy induces commercial activities and other functions such as provision of service emerge to cater to these populace. Examples of such centers include: chwele, Kimilili, Tongaren, Ndalul and Kapsakwony .

To this effect, there are three distinct settlement structures in Bungoma: Dispersed settlement in rural areas, clustered settlements in urban areas and linear settlements along major roads. This is indicated in the image below:



Dispersed settlements:

This structure is however unique to Bungoma as the rural agricultural land undergoes intensive subdivision. This trend has implications for planning due to the resultant small numerous land parcel units; It increases the unit cost of infrastructure installation such as roads, water, electricity. Beyond the requirements on infrastructure, its availability impacts rural development and inhibits access to markets and services and derails rural off farm economy

Linear settlements:

This phenomena is common along roads, they are often emergent as a result of lack a land use planning policy. This structure prohibits optimal land utilisation bringing about waste of land with an irrational build up area and contributing to unprecedented urban sprawl.

Clustered settlements

They mainly occur in urban areas. They are most ideal in terms of service provision but often tend to be the most imparted by land subdivision.

The drivers of functional rural development have the following attributes:

- a) increased farm production by creating proper linkages in production
- b) increasing non-farm employment opportunities
- c) provision of support services such as extension, mechanisation, markets and storage silos etc.
- d) Have proper rural infrastructure

7.3 HIERACHY OF URBAN CENTRES

7.3.1 Overview

An urban settlement is an area with an increased density of human-created structures in comparison to the areas surrounding it and has a population of 2,000 people and above.

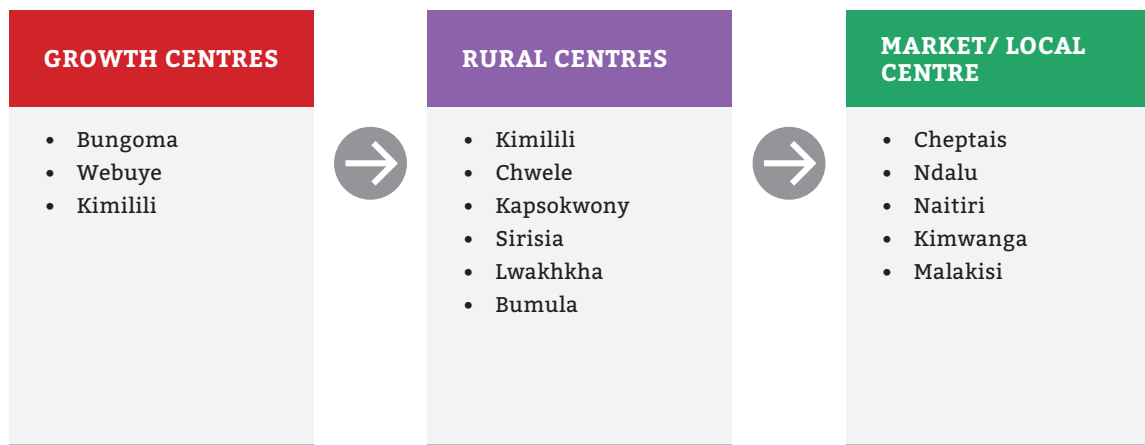
Categories and hierarchy of urban settlements

Attempts at categorizing settlements in hierarchies at national level were undertaken under the Human Settlement Strategy of 1978 that identified five categories of settlement hierarchy as:

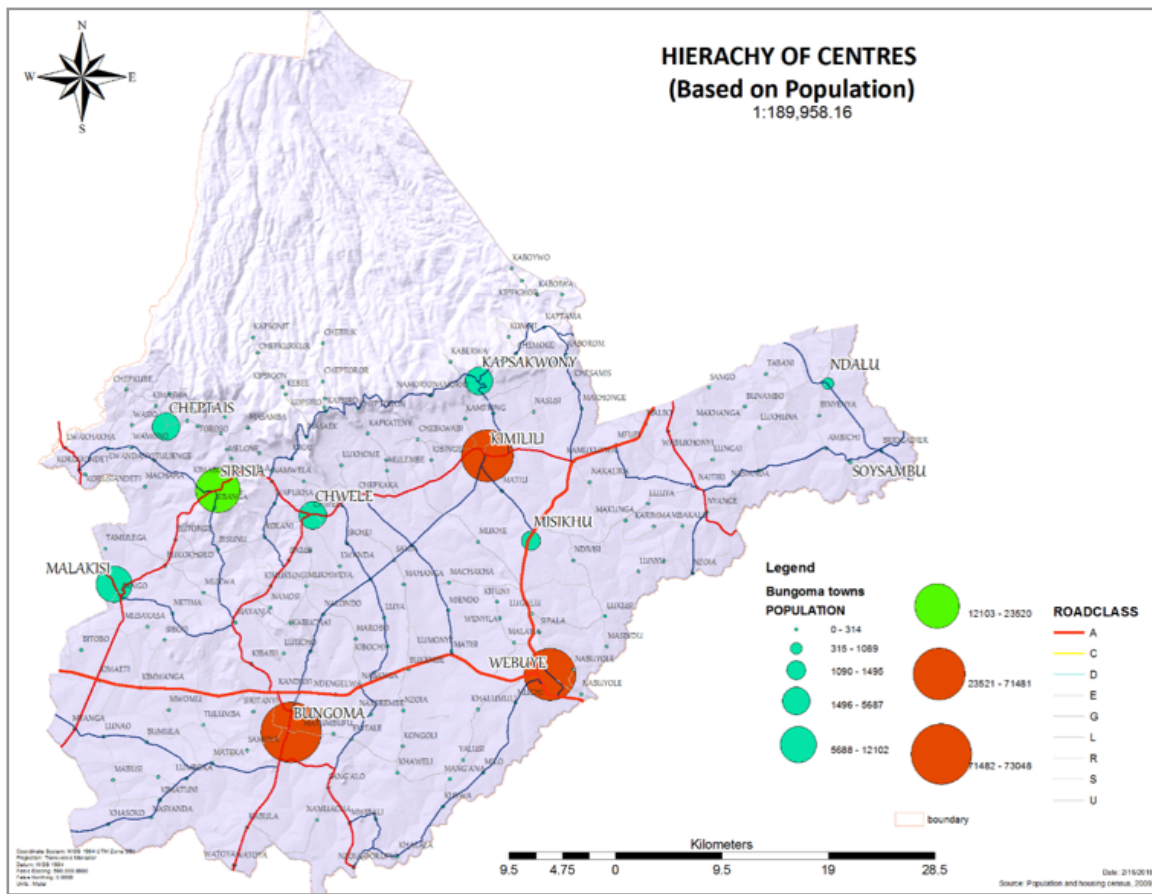
- Growth centers: These are poles that aim at inducing growth functions in strategically selected large centers. They are potential centers for urban and industrial growth.
- Urban/ Service Centers: Form the highest category of a planned center; have the capacity to serve a rural hinterland and function as reception centers for immigrants seeking employment and social amenities.
- Rural Center: Intended to serve a population of about 40,000 people and has a residential population of between 2,000-10,000 people.
- Market Center: Approximately serves a rural population of 15,000 and a residential population of less than 2,000 people
- Local Center: Is at the lowest level of service center designated to serve the local needs of people within walking distance. It should serve a population of 5,000 people from the hinterland.

7.3.2 Hierarchy of Centers in Bungoma

The hierarchy is an inter play between the growth function and service function of the urban areas. In view of the above definition, main urban settlements in Bungoma County (which were organized at Sub-County level) include; Bungoma, Webuye, Kimilili, Chwele, Kapsakwony, Sirisia, Kapsokwony, Cheptais, Ndalul, Naitiri, Lwakhakha, Bumula, Myanga and Malakisi, there are three main categories of urban settlements in Bungoma as indicated in the following schematic diagram:



Map 58: Hierarchy of centers based on population



Prepared by: Two Ems Associates, 2015

The summary of analysis of centres based on existing services and as per the Urban Areas and Cities Act (2011) includes:+++

Hierarchy of Centers based on services

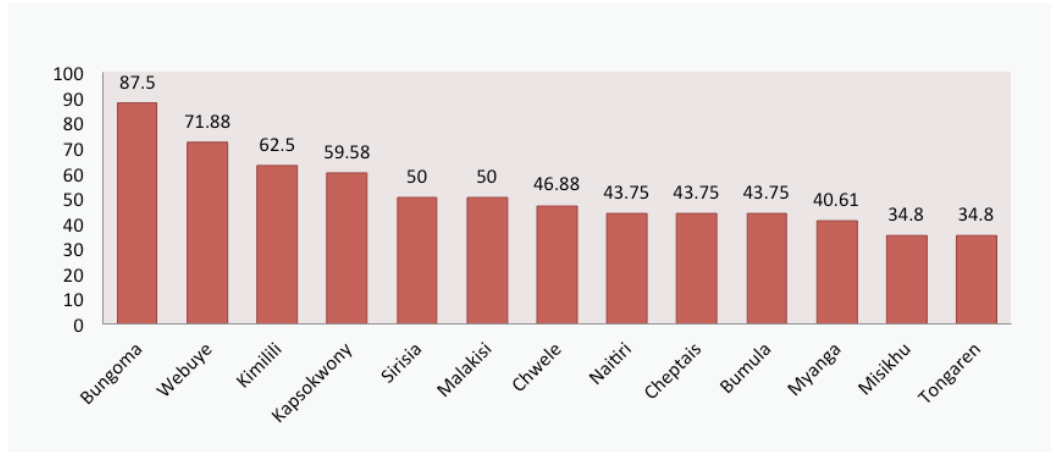
	SIRISIA	CHWELE	NAITRI	TONGAREN	CHEPTAIS	KIMILLI	KAPSOKWANY	BUMULA	MYANGA	WEBUYE	MISIKHU	MALAKISI	BUNGOMA
Street Lighting	√	√	X	X	X	X	X	X	X	√	X	X	√
Cemeteries and Crematoria	X	X	X	√	X	X	X	X	X	X	X	X	√
Libraries	X	X	√	X	X	√	√	X	X	X	X	X	√
Heath Facilities	√	√	√	√	√	√	√	√	√	√	√	√	√
Sports and Cultural Activities	√	X	√	X	X	√	√	X	X	√	X	X	√
Abattoirs	√	√	√	X	√	√	√	√	X	√	X	X	√
Refuse Collection	X	X	X	X	√	√	√	√	X	√	X	√	√
Solid waste management	X	X	X	X	X	X	√	X	X	X	X	X	√
Air noise	√	√	√	√	√	√	√	√	√	√	√	√	√
Child Care Facilities	X	X	X	X	√	√	√	√	X	√	X	X	√
Pre-Primary Education	√	√	√	√	√	√	√	√	√	√	√	√	√
Community Centres	√	√	X	X	X	X	√	X	X	√	X	X	√
Guest Houses	√	√	√	√	X	√	X	X	√	√	√	√	√
Homestays	X	X	X	X	X	√	X	X	√	√	√	√	√
Polytechnic	√	√	√	X	√	√	X	√	√	√	X	√	√
Training Institution	√	√	√	X	√	√	√	√	√	√	√	√	√
County School	√	√	√	√	√	√	√	√	√	√	√	√	√
Airstrip	X	X	X	X	X	X	X	X	X	√	X	X	√
Unclassified roads	√	√	√	√	√	√	√	√	√	√	√	√	√
Museum	X	X	X	X	X	X	X	X	X	X	X	X	X
Historical Monument	√	√	X	X	√	X	√	√	X	√	X	√	X
Postal services	√	√	√	√	√	√	√	√	√	√	X	√	√
Regional Radio Station	X	X	X	X	X	X	√	X	X	√	X	X	√
Community Radio	X	X	X	X	X	X	X	X	X	√	X	X	√
Funeral Parlor	X	X	X	X	X	X	X	X	X	√	X	X	√
Cemetery	X	X	X	√	X	√	X	X	X	X	X	X	√
Recreational Parks	X	X	X	X	X	√	X	X	X	√	X	X	√
Management of Markets	√	√	√	√	√	√	√	√	√	√	√	√	√
Marine Water front	X	X	X	X	X	X	X	X	X	X	X	X	X
Animal control and welfare	X	X	X	X	X	X	X	X	X	X	X	X	X
Religious Institution	√	√	√	√	√	√	√	√	√	√	√	√	√
Stimulus market	√	√	X	X	X	√	√	X	√		√	√	√
Population (2014 projections)													
TOTAL (ticks of 32)	17	16	14	11	14	20	19	14	13	24	11	15	28

Source: The Urban Areas Boundary and Delineation Committee, 2012

KEY

√ PR	Available – Private property
√	Available – Public property
X	Not available

Percentage of services available in towns



Source: *The Urban Areas Boundary and Delineation Committee, 2012*

Based on the above analysis, Kapsokwony, Sirisia and Malakisi are playing a dominant urbanization function with an average function score above

7.3.3 Growth trends per category of Urban Settlements

According to the Human Settlement Strategy of 1978, Bungoma, Webuye and Kimilili were classified as growth centers. Their selection was based on the below criteria:

- Administrative potential
- Agricultural development potential
- Tourist potential
- Industrial potential
- Proximity to population concentrations
- Level of existing infrastructure
- Accessibility

The Bungoma County transport corridors are central in structuring settlements and provide important connections between economic nodes or hubs centred on urban landscapes in which large amount of economic resources and actors are concentrated, thus, providing a linkage to supply demand sides of the market. Overall, have networks effect as demonstrated on the above map, on the regional/county economic development and potentials; they allows the distribution of benefits accruing across the county in various investment scenarios, linkages of supply and demand sides of the markets. Therefore, are not mere transport connections along which people and goods move in the County, but integral to the economic fabric and economic actors surrounding as part of integrated economic networks; global, regional and county value chains and production networks;

Providing important channels for;

- Export (international and regional)
- Agribusiness share of exports; especially on cost and times of moving agricultural perishable goods along domestic and global value chains
- Connects peripheral and lagging parts of the County through physical corridors to central areas
- Fosters intraregional/county and inter regional/county trade
- This should be supported through transport network completeness, especially on the upper parts of the County

Map 60: Urban Footprints and Edges

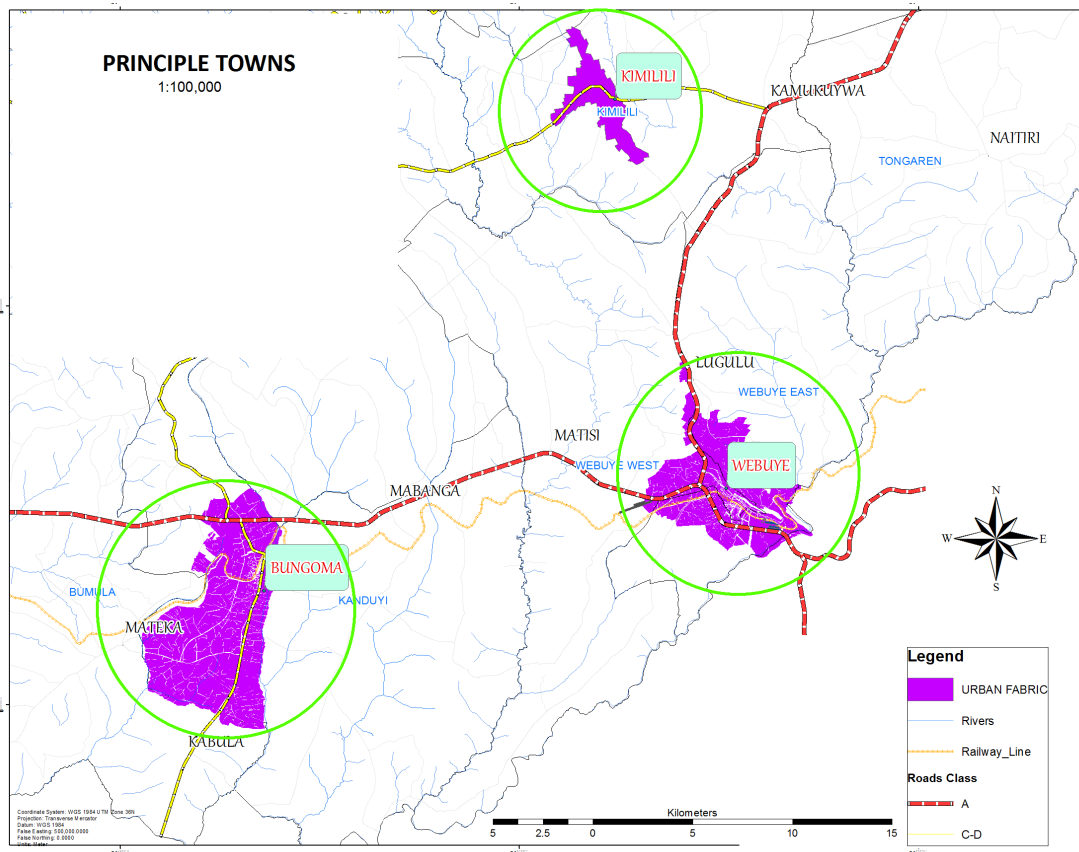
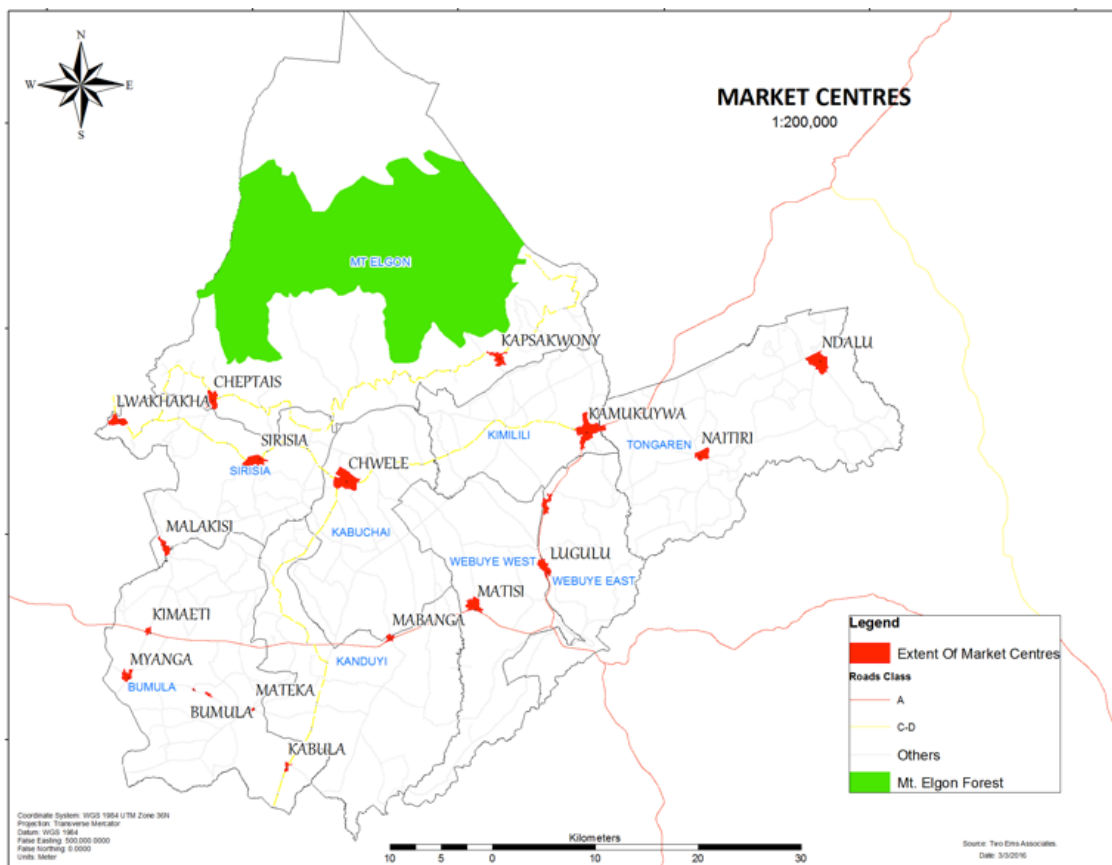


Table 23: Analysis of Growth Centres in Bungoma

Growth Centres	Function and Challenges
Bungoma Town	<p>The most important function of the Town is the is the administration ; the County headquarters</p> <ul style="list-style-type: none"> Well established infrastructure furniture of street lights, piped water and sewer lines Institutions of higher education which include MMUST and Kibabii. Kenya Medical Training College and other mid-level colleges are found within the town. Heritage and cultural function (Sang’alo cultural center), Airstrip, Railway line Some of it’s challenges include: urban sprawl, Informal settlements, poor waste disposal, inadequate recreational facilities poor pedestrian circulation forcing pedestrians to compete with motorized means on the limited road reserve Kanduyi area is a traffick bottleneck due to unplanned bus terminus and trailer parking Lack of a landmark

<p>Webuye Town</p>	<ul style="list-style-type: none"> • industrial town hosting the dead Pan Paper African paper mill • strategic location along the Kenya - Uganda highway and linked to Kitale and Kakamega via the Great Northern Road. • Elaborate road network and existing Airstrip in Matulo • The location of Masinde Muliro University of Science and Technology campus within the town is a recent growth impetus • Major natural resources within the town (Chetambe hills and river Nzoia) which also may act as development boundaries • Decaying CBD • Low densities • Limited sewer system
<p>Kimilili</p>	<ul style="list-style-type: none"> • Kimilili grew into an administrative and commercial hub • Strategically located with a good road network to Kapsokwony, Kitale, Webuye, Bungoma, Kamukuywa, and Chwele road within the county • Its proximity to the fertile slopes of Mt. Elgon, on the Kenya- Uganda border, has made it a trading center for agricultural goods and services. • Economic town since the surrounding regions are mainly farmland • Hosts major learning institutions, among them Friends School Kamusinga • Lack of value addition industries despite presence of raw materials • Poor drainage of storm water • Poor accommodation and hospitality for dormitory town function it serves

7.3.4 Rural Centres Footprints and Edges



The following are functions that market centres will play to the growth of Bungoma County:

Rural Centre	Function
Chwele	<ul style="list-style-type: none"> • Hosts Kenya’s second largest open air market. • It is strategically located on major road networks from Kimilili, Bungoma, cheptais and Sirisia. • The area has a health center that caters for the local community and it has both in-patient and out-patient facilities • It is experiencing urban sprawl requiring planning intervention
Malakisi	<ul style="list-style-type: none"> • boosted by the past presence of tobacco industries and a cotton ginnery • The town is structured by the commercial activities structured by linear settlements pattern. • Factors attributing to the growth of Malakisi include; Tobacco leaf buying centres, Kenya Power substation, Shooting range, Health centre, Learning institutions and its interlink with Lwakhakha, Cheptais and Busia
Sirisia	<ul style="list-style-type: none"> • Started as an administrative town, which later grew to a commercial centre • It is interlinked with Cheptais, Chwele and Bungoma • Its growth is owed mainly to its location on the Chwele-Cheptais-Lwakhakha road on the one hand and Sirisia-Butonge-Malakisi. • Tomato processing plant and vegetable cooling center
Lwakhakha	<ul style="list-style-type: none"> • Lwakhakha is located at the Kenya-Uganda border and serves as an entry/ exit point/Gateway. • Trade and service Function
Kapsokwony	<ul style="list-style-type: none"> • Kapsakwony is located in Mt.Elgon sub-county and hosts the Mt. Elgon District Hospital • It performs both administrative and commercial functions.
Cheptais	<ul style="list-style-type: none"> • It is considered an economic hub for the Mt.Elgon sub county, major rivers transverse through it. Cheptais is located on southeastern slopes of Mt. Elgon with built up area of 0.5km radius • The centre’s growth is attributed to learning institutions and health centre • Its interlinked to Lwakhakha, Chebukube.
7) Ndalū	<ul style="list-style-type: none"> • Located within Tongaren Sub- County and is mainly a trade and service Center.

Naitiri	<ul style="list-style-type: none"> • It is located in the settlement schemes at the junction of Turbo-Entebes and Matunda-Misikhu roads. Naitiri is located in the settlement scheme at the Junction of Turbo-Entebes and Matunda Misikhu roads. The center serves commercial and administrative functions, and it has administration police substation for security purposes • The growth of the centre is attributed to the existent institutions and the sub district hospital that serve the high population
Misikhu	<ul style="list-style-type: none"> • Misikhu town is located along Kitale - Webuye road and its development has followed the linear pattern of growth. The road network linking it to Kimilili and Kamukuywa forms a triangle and with their close proximity they can complement each other • Origin of growth is attributed to the former Misikhu Mission hospital, schools and major road network • The center acts mainly as a transit center for the people from the interiors of Naitiri and Tongaren.
Bumula	<ul style="list-style-type: none"> • It started as an administrative centre, which over the years grew to a commercial centre. • Bumula is a commercial center interlinked with Myanga to the North, Bungoma East and Busia to the South West. It exhibits a linear pattern of growth, the main structuring feature being the road from Mateka to Myanga
Myanga	<ul style="list-style-type: none"> • Myanga is situated on the South Western side of Bungoma town and it is accessed via Bungoma-Myanga road. It is a commercial centre for agricultural activities. • The town grew as a result of the presence of National Cereals and Produce Board (NCPB) depot and the railway station • Presence of learning institutions such as Kibabii Diploma College
Kamukuywa	<ul style="list-style-type: none"> • Located within Kimilili Sub-County. It is a transit town as it is located along the Webuye-Kitale highway thus settlements project a linear pattern along the class A and class C roads • Transit/junction Town (located along the Webuye-Kitale highway)

Market Centers

There are various major markets in Bungoma County that play a crucial role in supporting the agricultural and trade economy of the county and they are located all over as illustrated below:

Map 75: Bungoma market centres

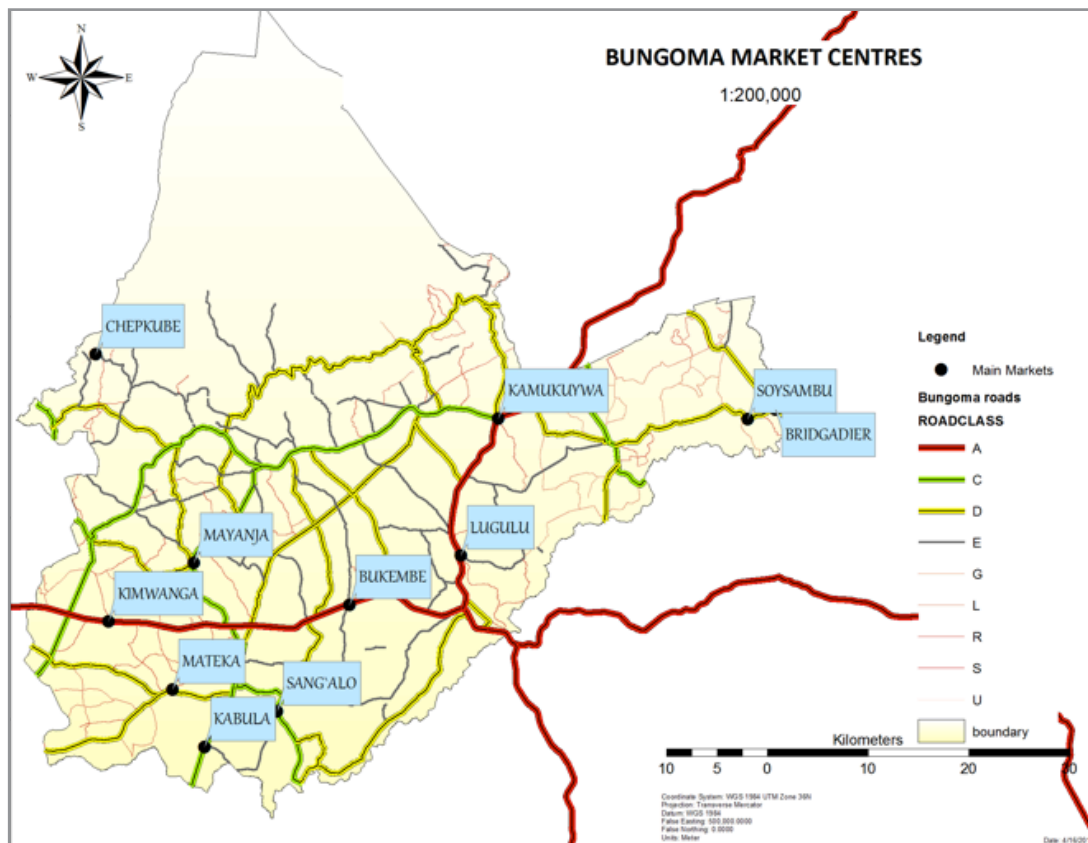


Table 24: Market centres

Market centre	Function
Kibabii	<ul style="list-style-type: none"> It hosts Kibabii University, a teachers training college and two national secondary schools. Serves as an educational and commercial centre. Structured by Presence of tertiary learning institutions; Proximity to the highway Services-Educational institutions; Sewer treatment plant under construction Growth drivers-Institutions of higher learning drive growth of the town Issues- Inadequate water supply
Brigadier	<ul style="list-style-type: none"> Serves as a commercial centre Structuring elements-Road Junction; River Nzoia Services offered include Banking services; Health services Main town issues-No sanitation and drainage facilities

Kabula	<ul style="list-style-type: none"> • Serves as a Commercial and agricultural centre. • Structuring elements:-Road Junction, Located at the boarder of Bungoma and Kakamega • Services- Health services; telecommunication network services,market facilities • Constraints-lacks sanitation facilities,lacks PDP
Bukembe	<ul style="list-style-type: none"> • It is a Commercial Centre exhibiting Linear settlement, and located at a road junction • Issues-lacks sanitation facilities, water shortage • No PDP
Musikoma	<ul style="list-style-type: none"> • Services-good infrastructure facilities, satellite centre for Bungoma. • Constraints- No sanitation facilities
Sanga'lo	<ul style="list-style-type: none"> • Hosts the Bungoma Community Cultural Center. Serves as a commercial and cultural centre with the County Forestry Office sub-branch. • Issues- No PDP, lacks sanitation facilities, lacks drainage facilities
Mukuyuni	<ul style="list-style-type: none"> • Was headquarter of Bungoma north district. • Opportunities- Administrative function; trade and service • Constraints- Poor drainage facilities
Mayanja	<ul style="list-style-type: none"> • It is centrally located between Bungoma, Sirisia and Chwele. Has a linear settlement pattern • Opportunities-Serves as a commercial and agriculture centre • Services-health services • No PDP • No drainage facility • Water shortage issues
Mateka	<ul style="list-style-type: none"> • Serves as a commercial and agricultural centre • Opportunities-satellite centre for Bungoma, learning institutions. • Constraints-No PDP
Kimwanga	<ul style="list-style-type: none"> • Opportunities- Trade • Constraints-no PDP, no drainage facility, water shortage issues
Mukhweya	<ul style="list-style-type: none"> • Opportunity- Trade and service • Constraints-No PDP,
Lugulu	<ul style="list-style-type: none"> • Opportunities- Trade and service • Constraints-limited sewer system, water shortage
Soysambu	<ul style="list-style-type: none"> • Located within Tongaren sub county • Services-Trade and service, public sanitation facilities, • Constraints-poor road network, no PDP
Chepkube	<ul style="list-style-type: none"> • Located at the boarder of Bungoma and Uganda • Opportunities- Transit town, Trade and service • Constraints- Poor drainage facilities

7.4 URBANIZATION TRENDS AND FUTURE PROJECTIONS

The future of urban growth in Bungoma will be structured by an interplay between the growth, service and transport functions. The urbanisation trend summarised herebelow;

Table 25: Analysis of Urban push and pull factors

URBANIZATION DRIVER	PUSH AND PULL FACTOR
Growth Centre Potential	<ul style="list-style-type: none"> • High order services -level of service provision • Administrative Function • Untapped industrial potentials (Agro-industrial induced growth)
Transport/ Regional Connectivity	<ul style="list-style-type: none"> • Strategic location of the county and access to regional markets. • Presence of the Trans-National Highway which traverses the county- easy flow of goods and services in Town like Kamukuywa, Kimaeti, Myanga
Natural Resource Potential	<ul style="list-style-type: none"> • Opportunities for mining of sand and building stones • Well-endowed Forestry Eco-systems • Rich biodiversity and scenic views • Decline in natural resource potential especially shrinking Agricultural land and production declined
Tourism and Culture	<ul style="list-style-type: none"> • Rich Culture (Bukusu circumcision rite) • Strong Heritage site and conservation opportunities e.g.: - Chetambe Ruins
Service provision	<ul style="list-style-type: none"> • Reduced condition for rural services may push people to urban areas in search of better conditions.

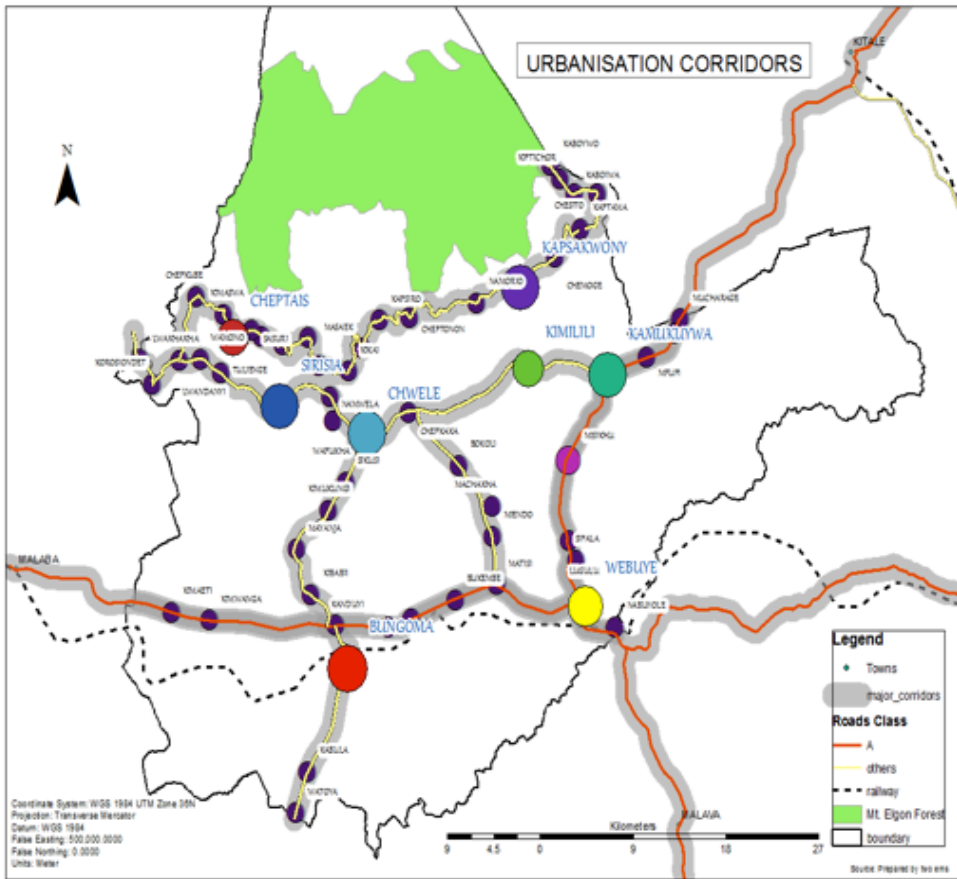
Source: Field Survey, 2015

Transport structured urban growth

The County transport corridors are central in structuring settlements and provide important connections between economic nodes or hubs centred on urban landscapes in which large amount of economic resources and actors are concentrated, thus, providing a linkage to supply demand sides of the market. Overall, have networks effect as demonstrated on the above map, on the regional/county economic development and potentials; they allows the distribution of benefits accruing across the county in various investment scenarios, linkages of supply and demand sides of the markets. Therefore, are not mere transport connections along which people and goods move in the County, but integral to the economic fabric and economic actors surrounding as part of integrated economic networks; global, regional and county value chains and production networks;

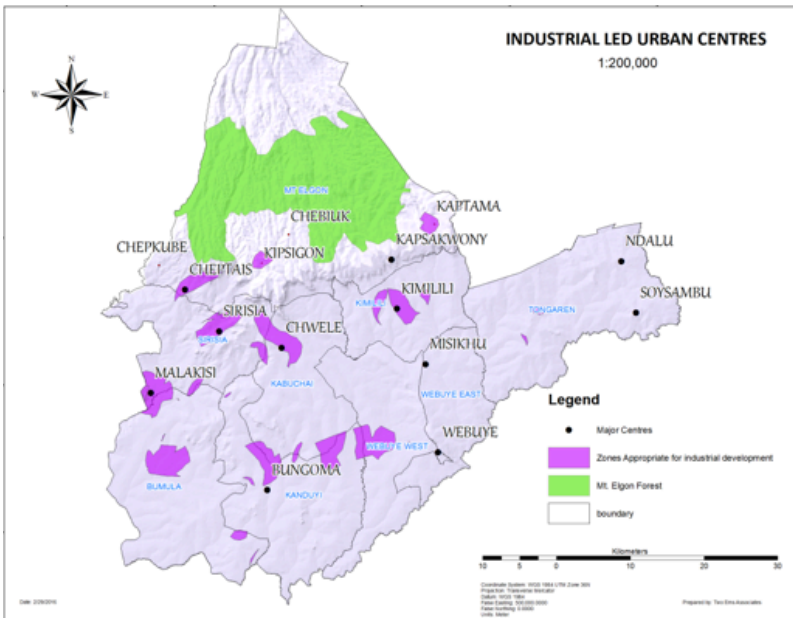
Providing important channels for;

- Export (international and regional)
- Agribusiness share of exports; especially on cost and times of moving agricultural perishable goods along domestic and global value chains
- Connects peripheral and lagging parts of the County through physical corridors to central areas
- Fosters intraregional/county and inter regional/county trade
- This should be supported through transport network completeness, especially on the upper parts of the County



Industrial Lead urban Growth

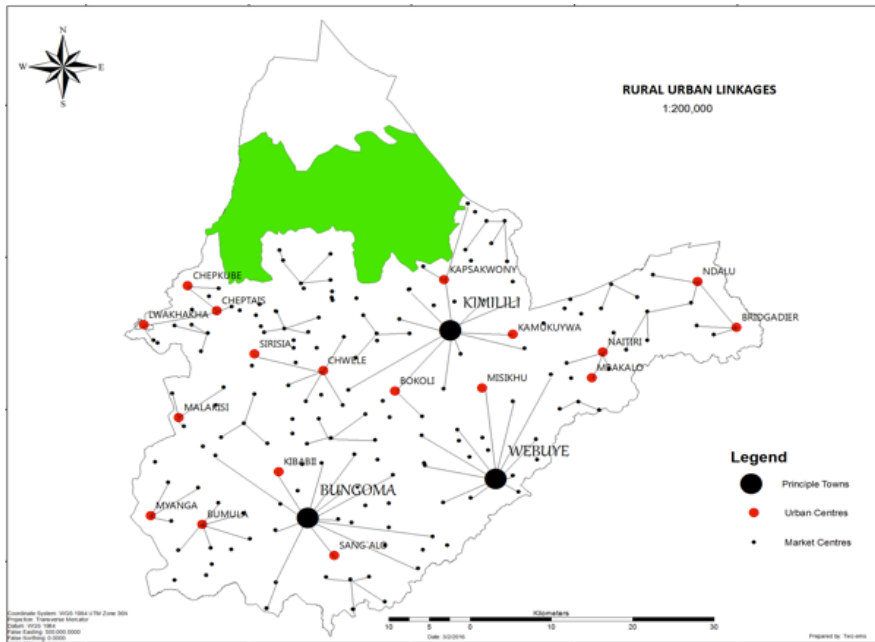
Industrial development is a major driver of urban growth. Based on the following herebelow parameters, sieve analysis was conducted for potential industrial zones linked to potential urban areas identified as indicated in the map below:



- Analysis Parameters for future Industries:
1. Away from physical and ecological constraints
 2. Accessible to raw materials; collection centres
 3. Accessibility to major roads for transport of raw materials and access of markets
 4. Available support functions (electricity, water, rail, waste disposal)
 5. Urban spheres of influence

To promote rural development in Bungoma, a model of selective dispersal is conceptualised on the map below. This conceptual model, is preferred because it is an integral part of accelerated rural development..

Conceptual framework for Rural Urban Linkages in Bungoma



7.5 HOUSING

Overview

Adequate housing contributes directly to human health, security and productivity, which are essential both to the quality of life and socio-economic development of any given society. It also forms a major instrument for creating a better environment in urban and rural areas.

7.5.1 Housing Typologies

Housing typologies are largely influenced by the indigenous culture of the people. Below are some of the diverse housing typologies in various human settlements within Bungoma County.



Modern brick house in Sirisia



Grass-thatched house in Kimaeti



Mud structure



Modern apartments under construction in Kibabii

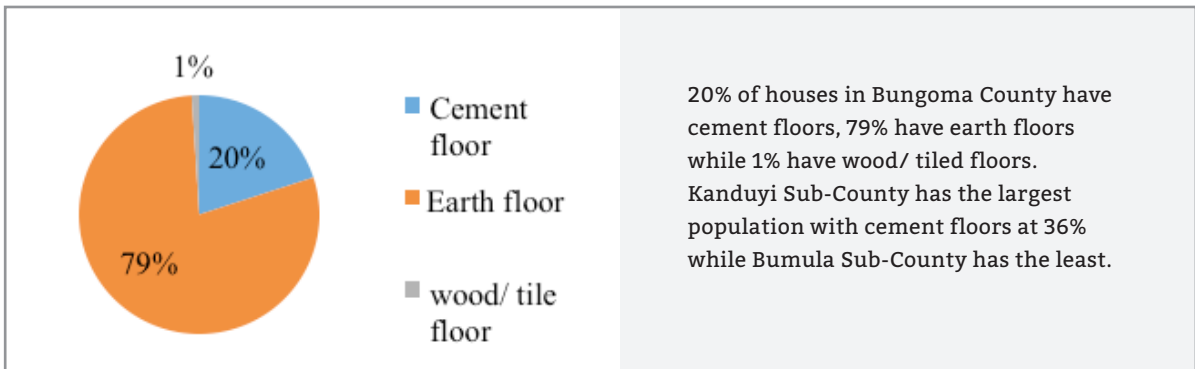
Source: Two Ems Associates

7.5.2 Housing Materials

According to the Kenya National Bureau of Statistics (KNBS) and Society for International Development, (2013), the housing materials primarily used in Bungoma are illustrated below.

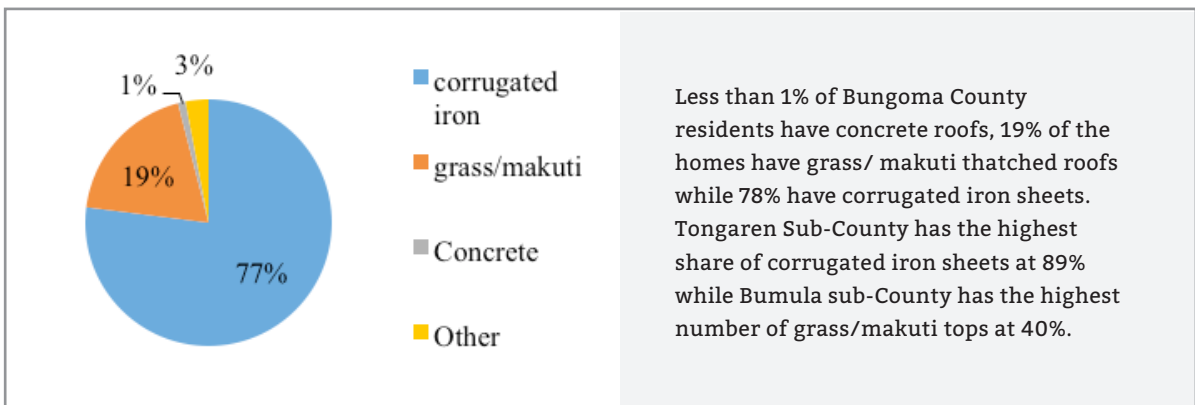
a) Floor

Chart 49: Percentage distribution of households by floor material



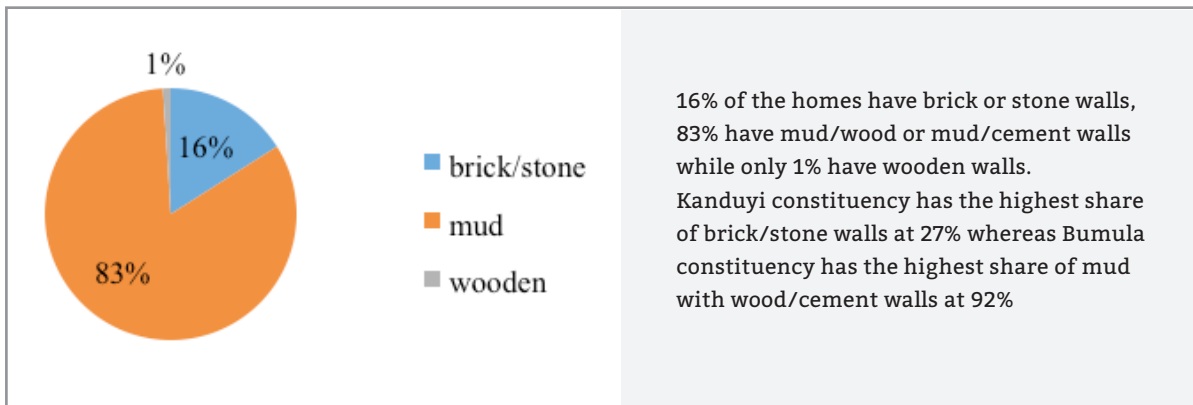
b) Roofing

Chart 50: Percentage distribution of households by roofing material



c) Walls

Chart 51: Percentage distribution of households by wall material



Implications on Housing Sector

Urban Housing

- The major towns within the county have low densities but there are emerging high densities coming up
- There is poor maintenance of buildings and housing structures within the urban areas of Bungoma, Webuye and Kimilili

Rural Housing

- Use of bricks for construction of housing is most common
- Rural housing in the county is characterised by the use of poor construction of housing materials and techniques
- There is high dependency on traditional construction methods
- The rural houses have poor access to amenities like piped water and sanitary facilities

7.5.3 Informal Settlements

The county government shall coordinate all slum upgrading projects in the county to include areas in Mashmbani and Mteremko in Khalaba Ward. Mandizini, and Muslim, and Mjini in Kanduyi Ward. The county government should facilitate the regularisation of slums and informal settlements, towards providing sustainable housing solutions.

7.6. POTENTIALS, OPPORTUNITIES AND CONSTRAINTS

	OPPORTUNITIES:	CONSTRAINTS:
a) URBAN SETTLEMENTS	<ul style="list-style-type: none"> • Most settlement patterns within Bungoma County are centred around small holder economic activities, especially farming related and Jua Kali activities therefore creating a potential to harness growth centres around these activities • Major human settlement structuring elements within the county are roads and natural resources, that is: Mt. Elgon, Rivers Nzoia and Malakisi and various roads such as International roads Class A 104 	<ul style="list-style-type: none"> • Rapid and unplanned urbanization and urban sprawl- Various towns are rapidly developing uncontrollably and sprawling into the surrounding hinterlands E.g.: Kanduyi Town has developed as a sprawl of the larger Bungoma Town • Settlement on ecologically fragile areas- Numerous sparse settlements are also evidence by massive land subdivision and settlement on the sloppy areas of Mt. Elgon and encroachment into forest reserves • Most towns within the County lack Development Plans and the ones that do, have either not been implemented or are outdated.
b) RURAL SETTLEMENTS	<ul style="list-style-type: none"> • Conservation of prime agricultural land • Provision of services for the rural centres 	<ul style="list-style-type: none"> • Unserviced and underperforming rural areas- Settlements in the rural areas lack electricity supply hence reliance on wood as the only source of energy which leads to rampant deforestation. • Declining Centers- town such as Chelebei Center appear to have stunted development evidenced by poor accessibility, dilapidated structures and general stagnated economic activities
c) HOUSING AND SHELTER	<ul style="list-style-type: none"> • Shelter is a basic need and an integrated land-use • Skills development at the local technical training institutions on improved construction materials like brick which are locally available • Need for rapid operationalization of the national housing policy within the sub-counties • Need for increased investment and funding in the housing sector • Provision of decent and affordable housing as well as development of the real estate sector through Public Private Partnerships • Research and technology in improved housing and building materials • Ease/ availability of local construction materials and indigenous knowledge in brick making 	<ul style="list-style-type: none"> • County does not have adequate quality housing for both urban and rural populations • Housing sector is characterized by low levels of urban home ownership, unserviced land and unplanned settlements • There is a relatively high cost of construction materials. There is need to subsidize low cost housing technologies • Housing structures are mostly low density throughout the county, as a result the number of people is higher than the available housing units

CHAPTER EIGHT: TRANSPORTATION

Overview

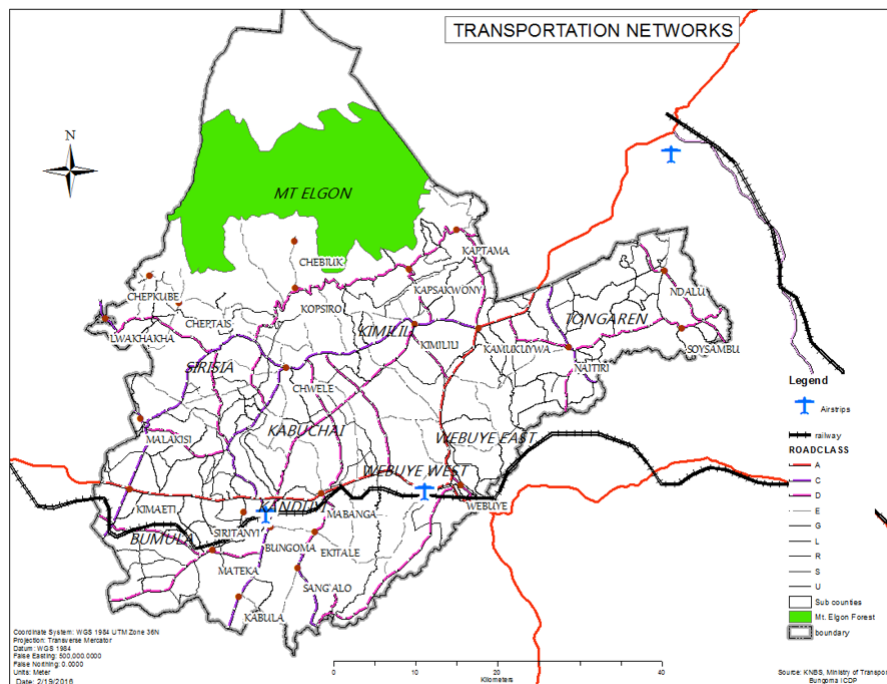
Transportation is the movement of goods, services and persons from one place to another through various means/travel ways. Transport infrastructure consists of fixed installations including roads, railways, airways, waterways, canals and terminals such as airports/strips, railway stations, warehouses, trucking terminals, refueling depots etc. Transport system is the circulation system of any given area which maximizes accessibility through essential movements between linked activities. The circulation of transport system should always consider safety, comfort, affordability, amenity and environmental effects.

Transportation is important because it facilitates economic, industrial, social and cultural development. It also contributes to shaping land use patterns and structures as well as human settlements.

8.0 Existing transportation networks

Transportation network refers to geographically based links, nodes, lines that represent the infrastructure or supply side of transportation. These include road, rail and air transport.

Map 3: Transportation Networks in Bungoma County



Map 1: Transportation Networks in Bungoma County

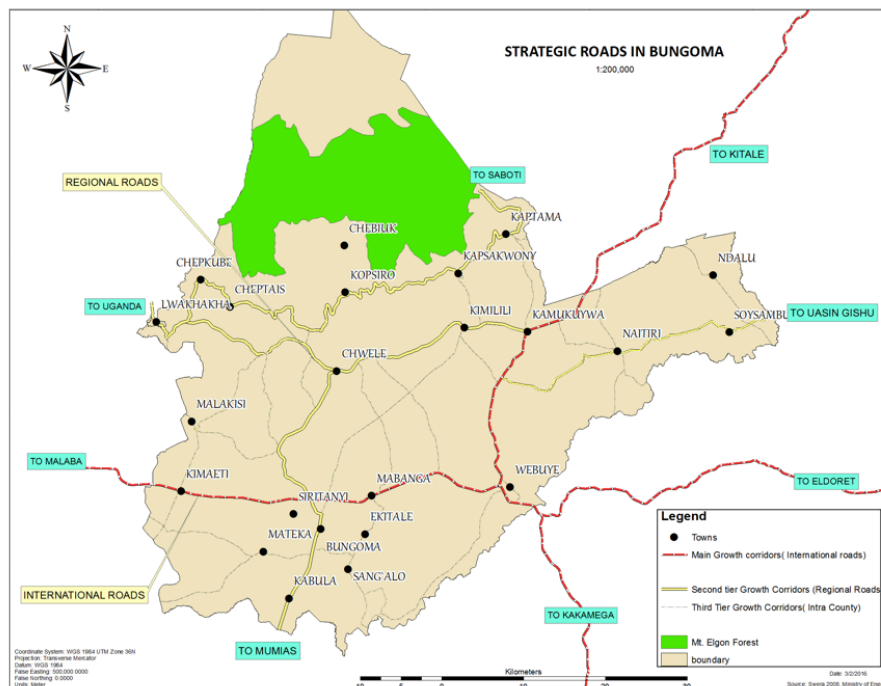
8.1 ROAD TRANSPORT

The County has 67 km of Class A roads and 154 km of Class C roads. The classified roads below have been identified to be important to transportation in the County, as they provide regional and internal connectivity. This has facilitated the flow of vehicular traffic and goods promoting trade in the region.

Table 1: Road classifications within Bungoma and their functions

Class No.	Route description	Function
A104 road	Eldoret-Webuye-Malaba	International highway that makes Bungoma, the gateway into Uganda, Rwanda, Burundi, the Democratic Republic of Congo and South Sudan as well as to major cities like Mombasa and Nairobi.
A1 road	Webuye- Kiminini-Kitale	Links Bungoma through Webuye to Trans zozia County as well as Sudan
C33 road	Bungoma-Mumias	Links Bungoma to major towns such as Kisumu, Kakamega, Mumias and Busia
		Links Bungoma to Chwele, Kimilili, Kamukuywa through C42 road
		Links Bungoma to Matisi-Bokoli-Chwele-Sirisia-Lwakhakha through C32 road
C41 road	Bungoma-Lurambi	Links Bungoma to major towns such as Kakamega
D road	Kaptama - Lwakhakha	Links the county to Uganda through Kaptama – Kapsakwony – Cheptais – Chepkube Lwakhakha

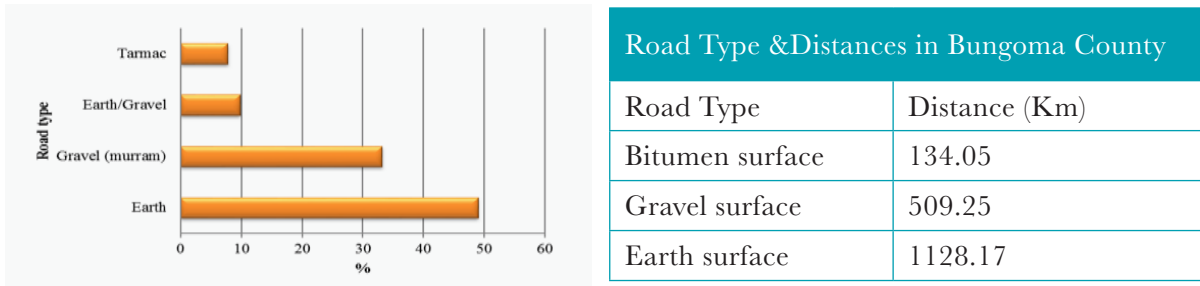
Inter-county and intra-county linkages map



8.1.1 Road Types

49% of the roads within Bungoma County are earth roads. The county government has been engaging in projects to upgrade some of them by adding gravel/ murrum. 33% of the roads are gravel while 7.8% are tarmacked..

Chart 33: Road types



8.1.2 Urban roads conditions

The major arterial roads traversing through the major urban centres i.e. the Class A104 (Eldoret- Webuye- Malaba road) and Class A1 road are in good condition.



Picture 1: Class A1 road passing through

Source: Two Ems Associates ltd

However, the road networks and condition within Bungoma town is poor. This is attributed to the poor design of roads i.e. the roads are narrow and do not meet the standard road width required. This has contributed to traffic congestion within Bungoma town.



Picture 2: Narrow road widths and non-segregation of travel modes

Source: Two Ems Associates ltd

8.1.3 Rural roads conditions

Majority of the roads in the rural areas are either earth or murram roads. This constitutes to 90% of the total road coverage in Bungoma County. The road network is fairly articulated. However, in the Mt. Elgon region, there are no existing routes to link the sub-county to the southern part of the county forcing them to pass through Kimilili sub-county to access the two A1 roads.

The road condition in Mt. Elgon is relatively poor, leading to inaccessibility especially during the rainy seasons in hilly areas such as Kipsigon. This has hindered transportation of agricultural produce which has made the people resonate to animal transport or boda boda, access to services such as health facilities, education facilities and security services.



Picture 4: Poor road conditions in Naitiri and Nabuyole

Source: Two Ems Associates ltd

8.1.4 Ongoing County roads projects

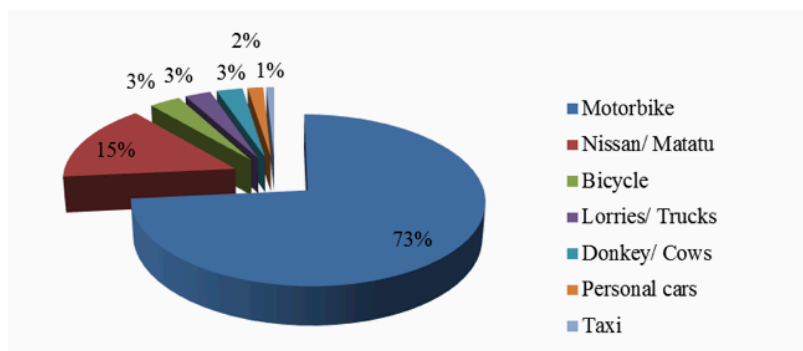
According to the Roads Department in the County, the ongoing projects are mainly on rehabilitation of roads in major urban centers such as Kapsakwony town roads; Kimilili- Sikhendu; Nzoia Junt-Nzoia mkt- Nzoia Bridge e.t c and rural areas such as Nangili to Khamoto.

There are also plenty of future projects to be undertaken such as rehabilitation of Moi Avenue road in Webuye; Upgrading of Kimilili bus park access roads, periodic maintenance of major roads among many others.

8.1.5 Road transport means

Majority of the people use Bodaboda (motor bike) as a means of transport within the County. Bodaboda is used for short distance trips in urban areas. In the rural areas however, it is used for long distance trips since it is difficult to access other means of public transport.

Chart 34: Major Transport means used



Source: Field Survey, 2015

Some parts of the county such as Chelebei do not access public transport means. People have to walk quite some distance to take a Boda boda so as to access public transport means. Majority of the people i.e. 48% of the surveyed population prefer the use of Matatu as a means of transport for long distances. This is because it is cheap/affordable, convenient/comfortable, available and safe among other reasons.

Chart 35: Preferred means of Transport

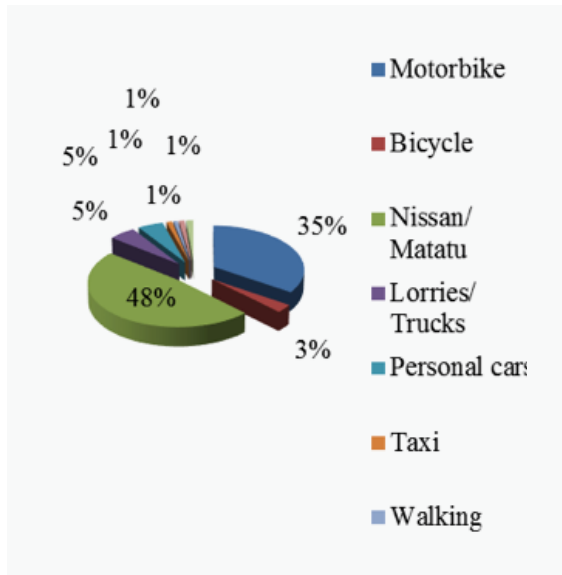
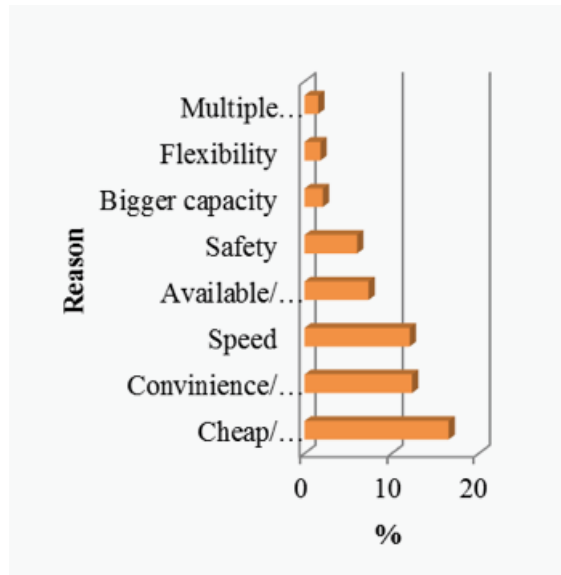


Chart 36: Reason for Preference



Source: Field Survey, 2015



Picture 5: Use of matatu and Bodaboda as public transport means

Source: Field Survey, 2015

8.1.6 Non-Motorized and Intermediate Means of Transport (NMIMTS)

Non-Motorized and Intermediate Means of Transport (NMIMT) include head loading, on bicycles, motor cycles, or through animal transport. NIMTS is an important means of transport both in urban and rural areas. It is mainly used to support rural mobility needs between homes and farms, markets, rivers, meeting grounds, schools, dispensaries, churches, local administrative offices and rural homes. These journeys facilitate the production of goods and their movement to markets and their supply to urban areas.

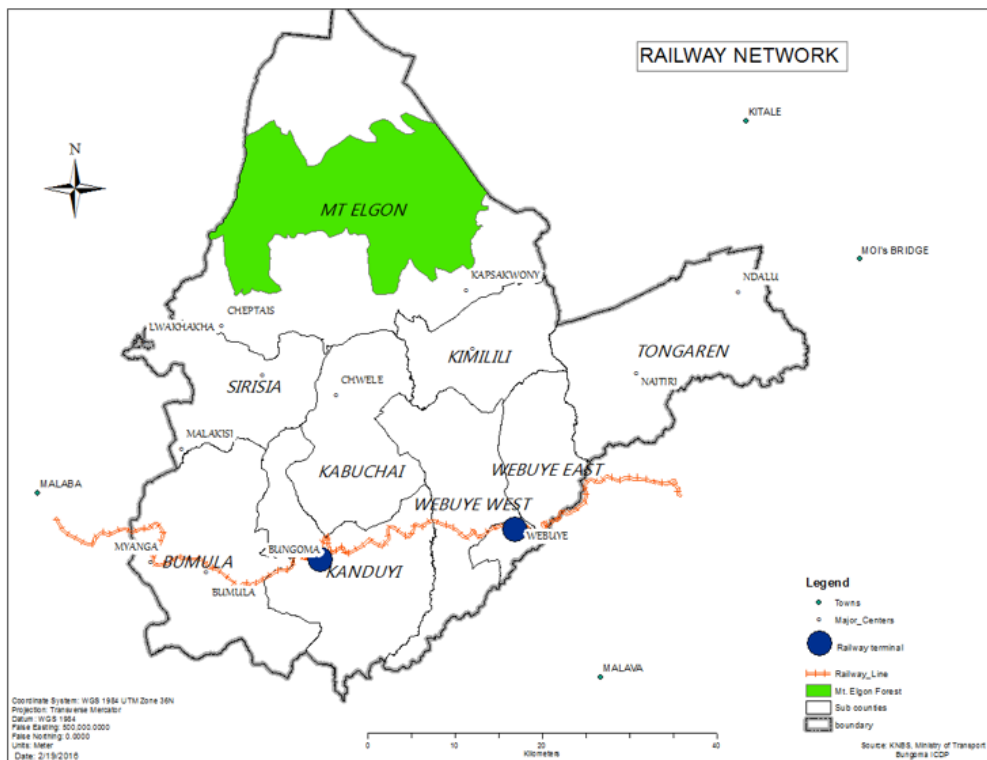
The NMIMTS used in Bungoma County comprise of Boda boda (Motor cycle and Bicycle), walking, and animal transport. The main travel means in the rural areas is mostly walking followed by Boda boda.

The existing road network does not cater for NMT provision. It is important to provide adequate space for pedestrian sidewalk networks and designate bicycle/motorcycle lanes to ensure safe, comfortable and easy movement in urban areas.

8.2 RAILWAY TRANSPORT

The railway line that passes through the County is the Kenya-Uganda railway, which originates from Mombasa to Uganda. The train station is currently underutilized and not well maintained. This is because the rail transport has become expensive than the use of lorries/trucks. The train service is used for transportation of bulk goods only. The goods transported to and from the County include petroleum oil products and cereals.

Rail transport map



Source: Prepared by Two Ems Associates

8.4 Transportation gaps

- There is need for upgrade of all rural feeder roads to gravel status with recommended width and drainage systems.
- Construction/ repair of bridges on the feeder roads is required to facilitate easy movement.
- It is necessary to identify Strategic rural roads which can be improved to spur further rural development and promote rural-urban linkage.
- There are underutilized and undeveloped airstrips which limits transport interchange options.

8.5 POTENTIAL OPPORTUNITIES AND CONSTRAINTS IN TRANSPORT

Potential Opportunities	Constraints
<ul style="list-style-type: none"> • Linkage of county markets to Ugandan markets • Promotion of inter-county linkages through development of road corridors • Relatively well articulated transport network • Use of rail transport to reduce truck traffic • Rehabilitation of dormant airstrips to facilitate tourist development • Presence of the A1 and A104 roads as structuring elements of the County • Fairly articulate road linkage network throughout the County • The flow of Truck/lorries in and out of the County 	<ul style="list-style-type: none"> • Steep terrain in Mt Elgon which makes it difficult to construct and repair roads. It also makes it expensive to provide road infrastructure • Poor road conditions. This has resulted to inaccessibility especially in the rural areas during the rainy seasons • There are no designated Non-Motorized Transport spaces, which has led to frequent accidents among pedestrians and bodaboda/bicycles in the major towns. • Poor design of roads especially in Bungoma town has resulted to the high traffic congestion among the different transport modes. • There are underutilized and undeveloped airstrips which limits transport interchange options. • Under utilized rail services • Bungoma airstip encroached upon

CHAPTER NINE: INFRASTRUCTURE SERVICES AND UTILITIES

9.0 Overview

“Infrastructure” refers to the basic physical and organizational structures needed for the operation of a society or enterprise, or the services and facilities necessary for an economy to function. It is divided into two main components that is, physical and social infrastructure. Infrastructure comprise of both water supply, energy, sanitation and ICT while social infrastructure refers to community facilities including education, healthcare, security, recreation, etc.

The Kenya Vision 2030 identifies physical infrastructure as one of the enablers of its social economic pillar. Actually, it is a yardstick for measuring level of development/growth in the County. This is because the level and the intensity of infrastructure used in a County is a key indicator of economic growth and development. Thus, the provision of well-maintained infrastructure is imperative to economic growth, employment generation and poverty reduction

9.1 WATER AND SANITATION

9.1.1 Water

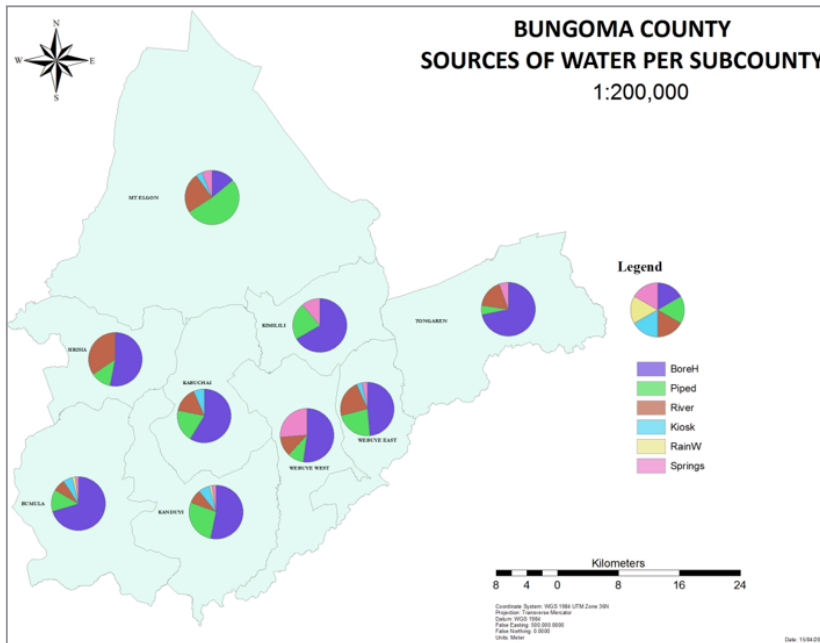
Water supply and network is a critical resource for sustaining all forms of life, as well as economic and social activities in a country. Individuals need water for their domestic and leisure activities whereas economies rely on water; to generate electricity, in agricultural and livestock development, for industrial production and for other commercial purposes particularly in tourism and catering industry. Water is also increasingly becoming a commodity whose sale provides income generating activities and employment opportunities. Access to water and its use is also indispensable not only for sanitation purposes but also for helping to reduce incidences of water borne diseases and improves public health, which account for a large proportion of health cases in hospitals.

The major sources of water in the county include:

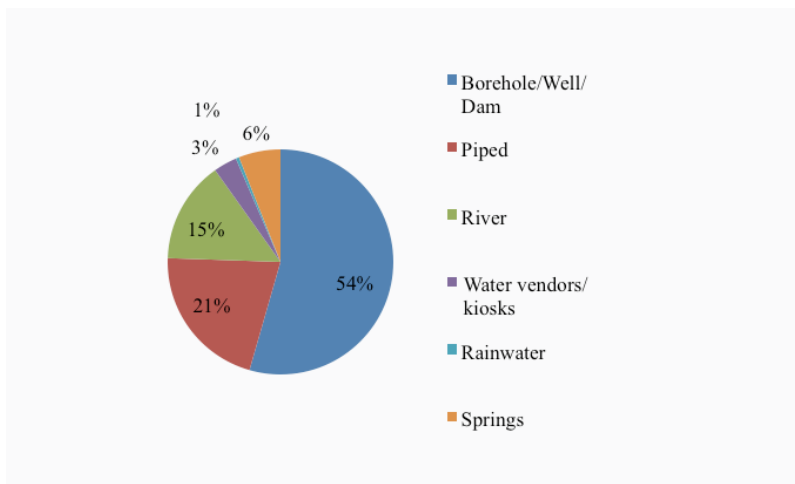
- a) Natural resources like; ground water sources i.e. shallow wells and springs and rivers which provide surface water
- b) Man-made sources; Boreholes, wells, dams, piped water vendors



Map 62: Water Sources in Bungoma County



Source: Prepared by Two Ems Associates

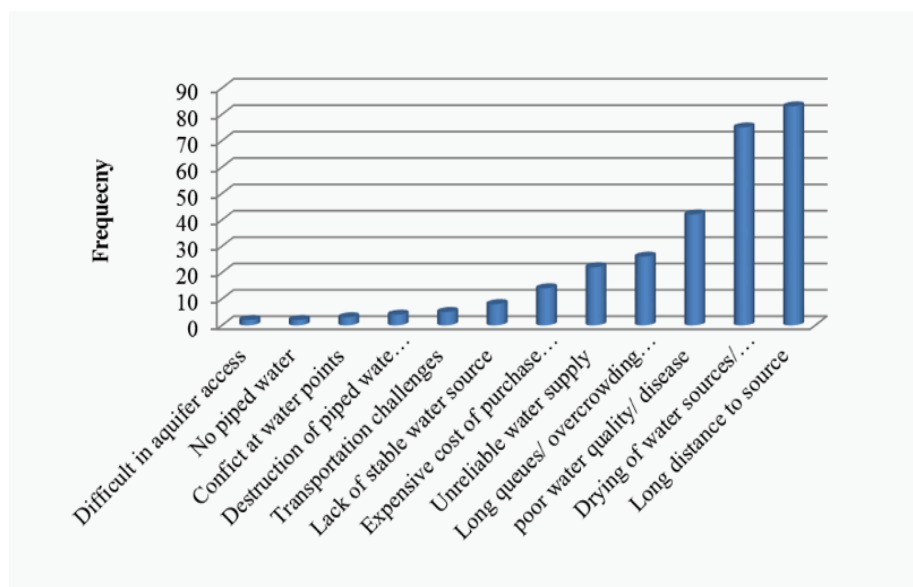


Source: Field Survey, 2015

Challenges of Water Subsector

The main challenges are long distance, drying of water sources, poor quality and overcrowding at water points among others.

Chart 11: Water Challenges given



Source: Field Survey, 2015

9.1.2 Urban Situation

a) Existing Condition

With urbanization increasing rapidly within the county, the demand for water is continually increasing. This is leading to water shortage in many urban towns within Bungoma. Consequently, water consumption increases rapidly beyond the system's capacity. This unreliable and inadequate water supply can prevent realization of long term development of urban areas within the county.

i) Water Supply Schemes

The County Integrated Plan outlines that there are four urban and six rural water supply schemes in the County. Urban schemes are mainly piped and are operated by L. Victoria North Water Service Board. The water service provider in the county is Nzoia Water and Sanitation Company.

Table 26: List of water service providers in L. Victoria North Catchment

WSP	Service Towns/ Areas	Service Population	Capacity (m ³ /day)
Nzoia WSC	Bungoma, Webuye, Matisi, Malakhisi, Kimilili, Malaba, Kocholia, Kapolet, Kitale	129,798	27,200

Source: NWMP Progress Report

ii) Water Quality

The pollution levels of River Nzoia is at an estimate of 70%, due to farming activities embarked on by the residents who own farm lands near the river. River Khalaba follows with estimate pollution levels of 65%. The river is highly contaminated with waste from commercial activities in the centers. According to the County Integrated Development Plan for Bungoma (2013-1017), the following water parameters relate to water quality in the County.

Table 27: River Water conditions

Parameter	Condition
PH	Varying from 6.8-8.3 for all the rivers
TDS	Vary with seasons but are usually higher than the recommended WHO of less than 1,000 Mg/l during rainy season
Turbidity	All the rivers have turbid water of more than 60NTU
Color	All rivers have water that is highly colored to tones of >200mg/Pt/L
Faecal Coliforms	Have high no. of faecal coliforms of > 100/100m/s
Total Coliforms	Have waters of high counts of > 200/100m/s
Hardness	All rivers have water that is not hard

Source: County Integrated Development Plan, 2013-2017

iii) Water Demand

The demand for water in the county is at 90% with supply of an estimate of 40,000-60,000m³ by the Nzoia Water and Service Company.

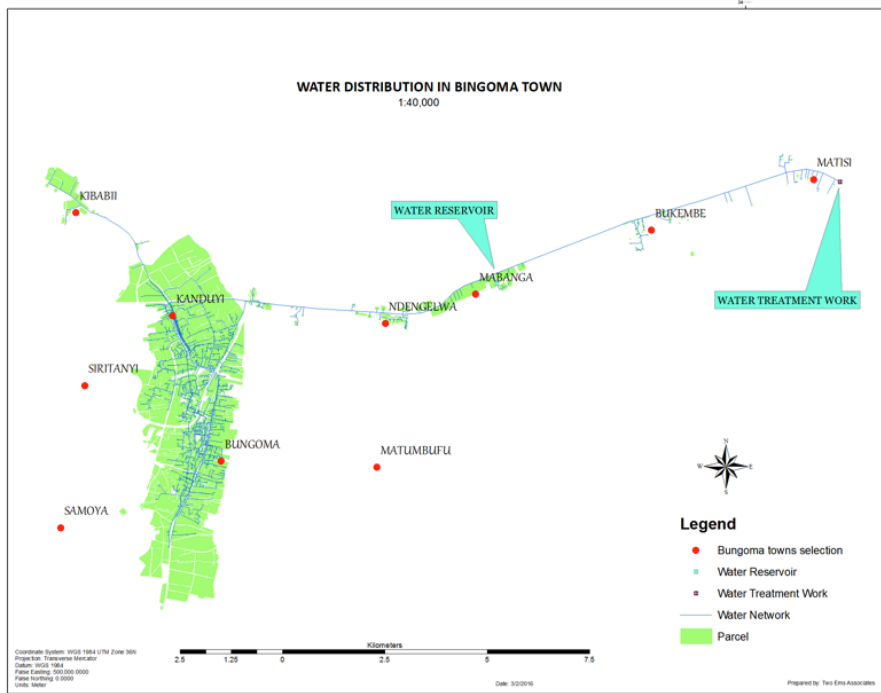
Table 28: Required Water Supply Capacities and Current Capacities for Major Urban centers

Urban centre	Population forecast 2030			Required capacity (m ³ /day)	Current capacity (m ³ /day)
	Urban population	Rural population	Total		
Bungoma	274,698	21,618	296,316	33,388	7,000
Webuye	203,288	20,465	223,754	25,120	7,000
Malakisi	83,997	21,119	105,116	11,545	
Chwele	70,441	4,394	74,835		

Source: NWMP Progress Report, 2012

b) Capacity Distribution

Map (Distribution of water networks)



Source: Prepared by Two Ems Associates

The water reticulation system within the county is mainly found within major urban areas of Bungoma, Kanduyi, Kimili and Webuye, . The network is generally in poor maintenance. There are no existing water treatment plants.

c) Ongoing projects

The on-going water projects that are being undertaken by the county consist of:

1. Protection of springs- The County Government has commissioned the protection of ten springs per every ward in the county. Examples of the wards include; Khisa, Fedha, Songo, Kachenga, Anona e.t.c
2. Roof Catchment- The County Government has found this technique will be helpful in meeting water demand. The project is ongoing in Cardinal Otunga Girls School, Maeni epi Camp (Kimilili) among other places.
3. Borehole drilling- The County Government is drilling a borehole in Chekulo Secondary School in Luuya/Bwake.

There is also a flagship project for the whole County called the Water Harvesting and Storage programme which is financed by the national and county government i.e. Ministry of Devolution and planning and the Ministry of Environment, water and Natural resources of Bungoma county. The project aims at construction of dams and drilling of boreholes across the county for water provision. The programme also plans to promote fish farming in the following dams; Mayanja, Stabicha, Munyundo, Labaa, Sosio, Bilongo and Binyenye. The county proposes putting up a dam in Tongaren. There are plans to construct Masuno dam in Bumula.

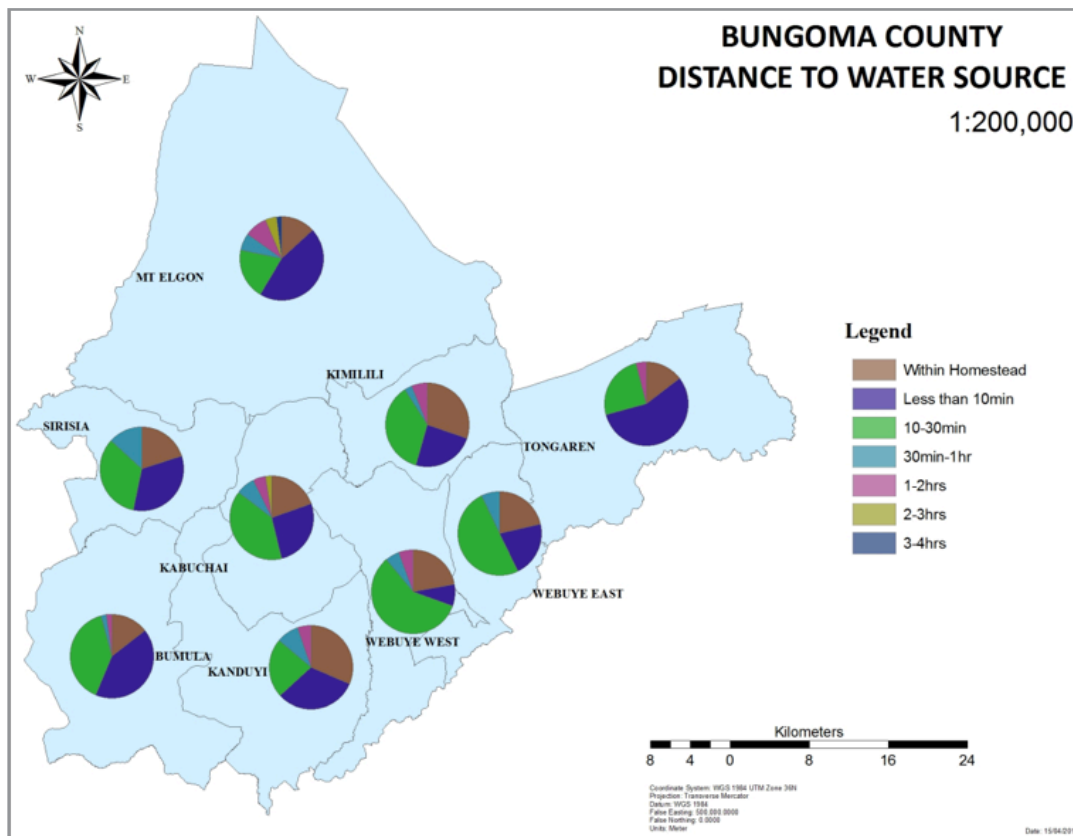
d) Gaps in Urban Water Infrastructure

- Poor and inadequate water reticulation systems
- Poor access to safe and clean water for consumption
- Lack of adequate provision of services in urban areas
- Unexploited water potentials

9.1.2 Rural Situation

a) Existing Condition

Water supply in the rural areas of the county is generally poor. There are no existing water infrastructure systems within rural Bungoma. It is realized that Water is mainly sourced from natural water sources like rivers Nzoia, Sossio, Malakisi, Khalaba and springs, as a result community members, particularly women and children travel long distances to access water.



Source: Prepared by Two Ems Associates

On average, the distance to the nearest source of water in rural areas is 1.5km while in urban areas is 0.5km

b) Capacity Distribution

There is no existing reticulation system. There is need to work on a rural supply programme consisting of equitable distribution of communal water points based on existing catchment populations and where possible also promote individual connections at the household level.

c) Gaps in Rural Water Infrastrucutre

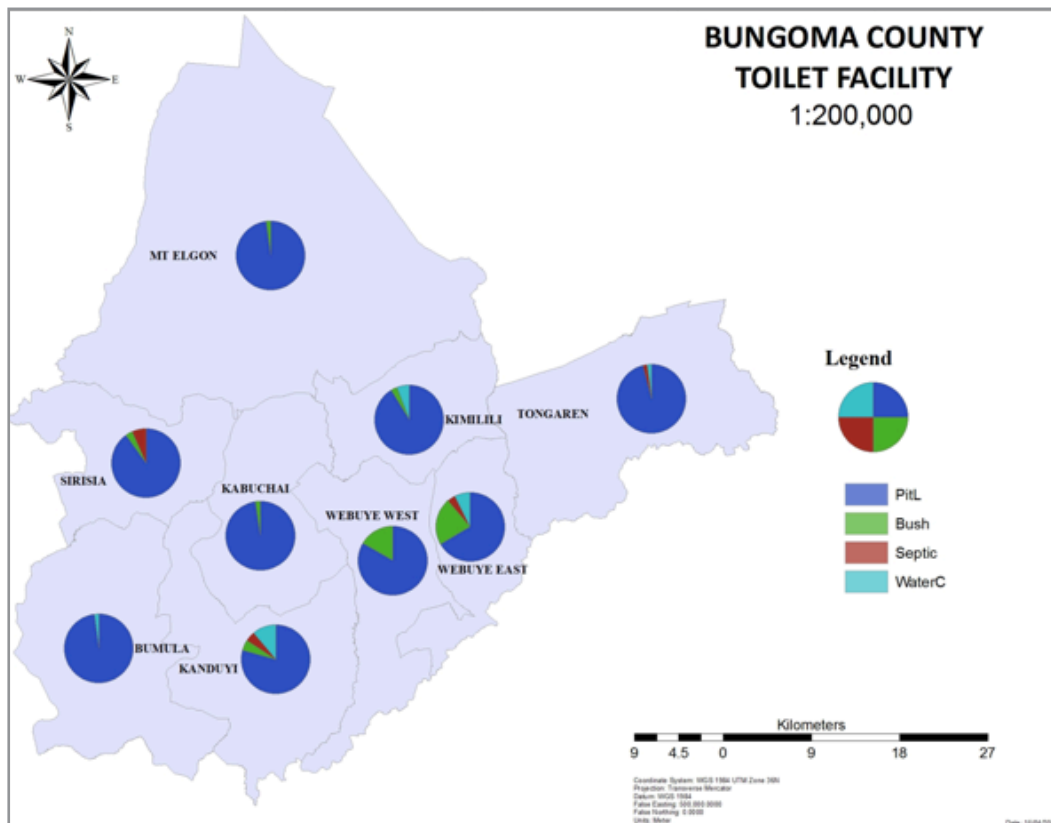
- Long distances to access water services
- Pollution of natural water sources
- Drying up of existing springs and wells due to climate change and encroachment on water catchment areas
- Poor management of the water schemes by the community members
- Untapped industrial potentials due to lack of adequate piped water supply will be

9.1.2 Sanitation

“Sanitation is a group of methods to collect human excreta and urine as well as community waste waters in a hygienic way, where human and community health is not altered” (WHO).

A) WASTE WATER

Map 46: Toilet facility used



Prepared by: Two Ems, 2015

Table 29: Required capacities and Existing capacities of Sewerage System

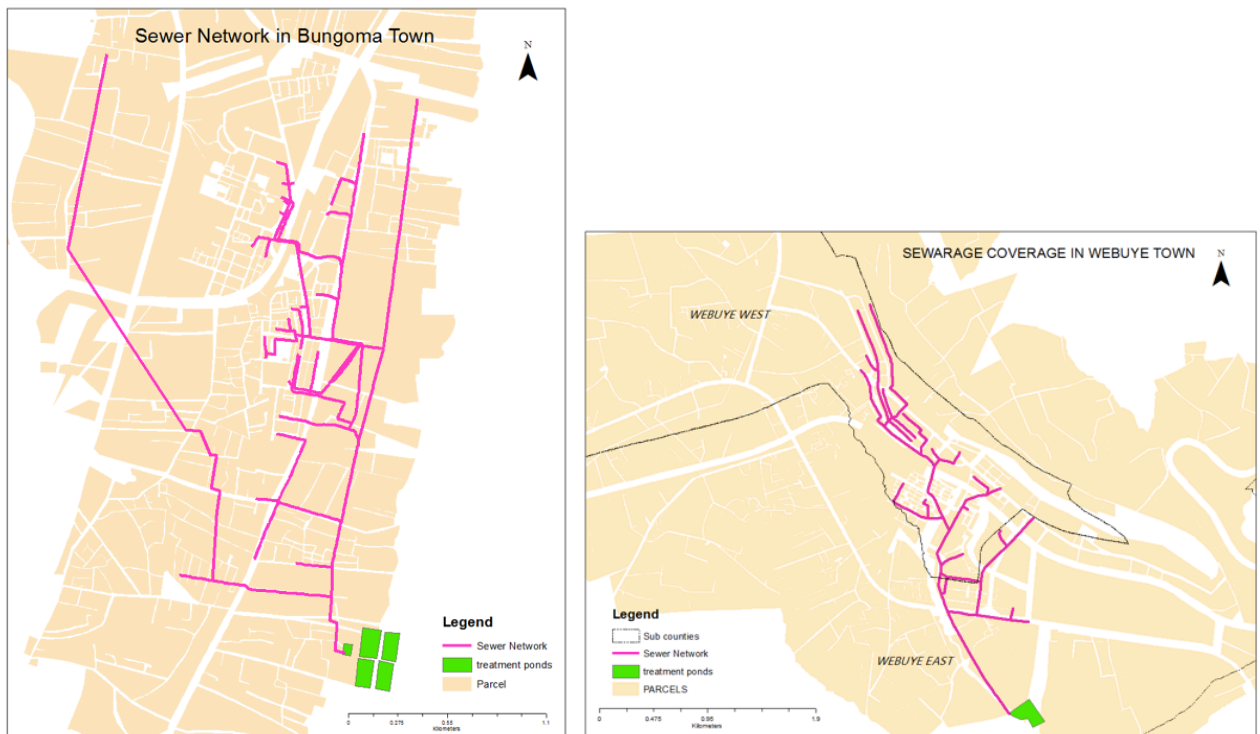
Urban centre	Service population	Required capacity (m ³ /day) in 2030	Existing capacity and Capacity under construction (m ³ /day)
Bungoma	274,698	20,932	4,500
Webuye	203,288	15,491	2,700
Kimilili	336,611	25,650	

Source: NWMP Progress Report, 2012

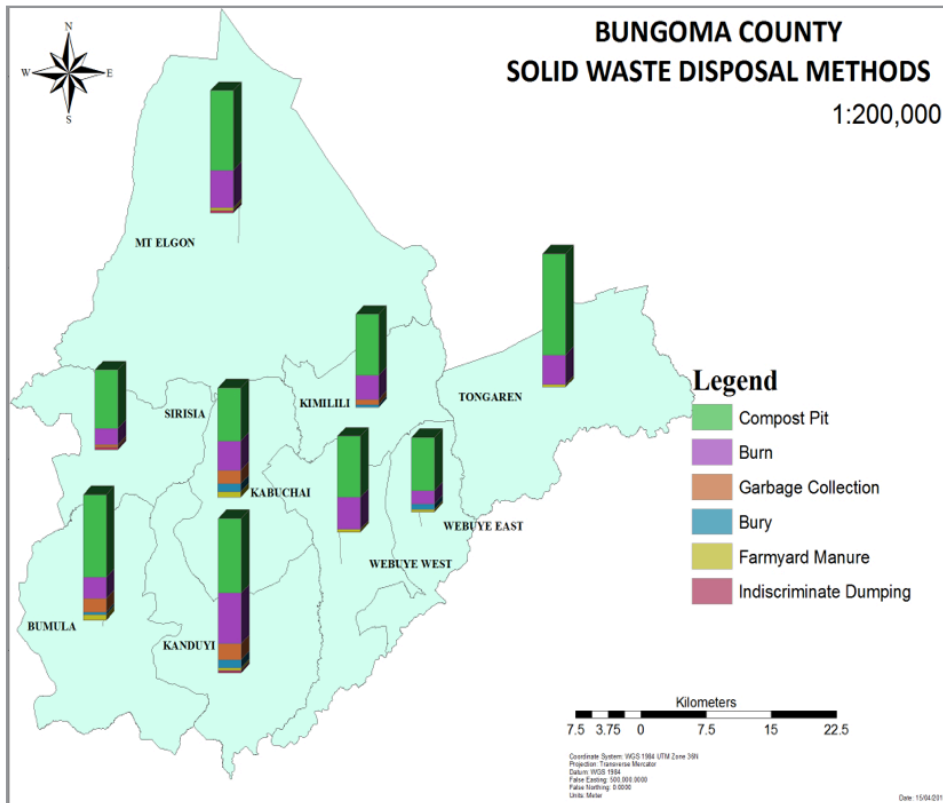
9.1.3 Sewer Infrastructure

- There is limited coverage of sewer systems operating within Kimilili, Bungoma and Webuye towns.
- There are on-going proposals by the Department of Water to construct a major sewer system from Kibabii area to the existing sewer as part of the 2015/2016 budget and the construction of a sewer line in every sub-county.
- Considering the rate of urbanization, sewer lines are quite inadequate

Map 64: Sewer Network in Bungoma and Webuye Town



Prepared by: Two Ems, 2015



Prepared by: Two Ems, 2015

9.1.4 Gap analysis

Urban Sanitation	Rural Sanitation
<ul style="list-style-type: none"> Undesignated dumping sites Limited sewerage network connection causing blockages of the existing sewers High level of urban environmental pollution due to poor solid waste management Siltation of storm water drainages 	<ul style="list-style-type: none"> There are no sewer lines Most use pit-latrines and bushes causing pollution of water sources

9.1.5 POC Analysis for water and Sanitation

POTENTIAL OPPORTUNITIES	CONSTRAINTS
WATER	
<ul style="list-style-type: none"> • Irrigated agriculture • Rain water harvesting • Investment in provision of piped water services • Tapping piped water from River Nzoia 	<ul style="list-style-type: none"> • Siltation of storm water drainages • Inadequate quantity and quality of water • Weak control and regulation of water use • Operational and maintenance costs are not catered for in the budget • Low funding • Poor maintenance of water supply projects • Unprotection of natural water sources • Drying up of natural resources • Lack of guiding policy to guide proper water management • Poor management of water supply schemes by community members • Poor maintenance of water supply system
SANITATION	
<ul style="list-style-type: none"> • Capacity Building of community members on improved sanitation practices like use of WCs • Increased investment in the sector • Public private partnerships 	<ul style="list-style-type: none"> • High population use pit latrine which may increase pollution of water table during rainy season • Upper part of Bungoma town isn't served with sewer lines • Inadequacy in number of sewer lines in the county causing blockages of the existing sewers • Inadequate designated dumpsites • Insufficient storm water drainage systems • Sewer treatment plant is underutilized • Low funding

9.2 ENERGY

A) ENERGY USE

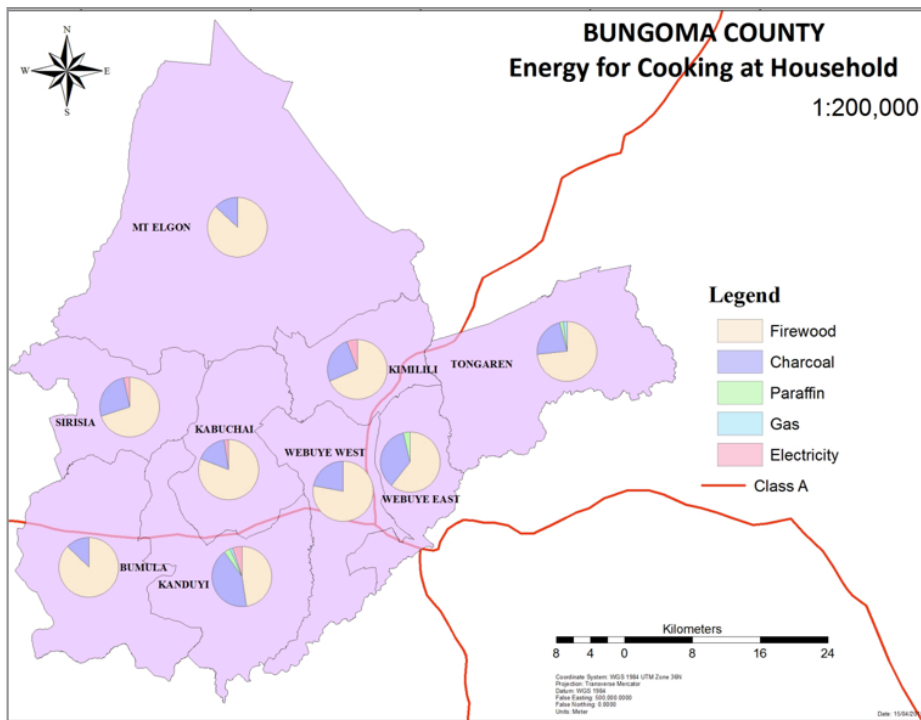
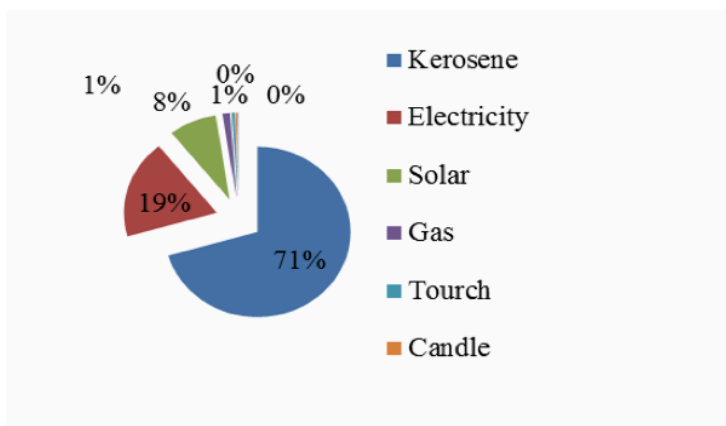


Chart 38: Energy for Lighting



Source: Field Survey, 2015

B) ELECTRICITY

9.2.1 Energy Demand and Supply

The demand for energy in the county as by 6th March 2015 was 11,115W for domestic users and 3,381W for industrial use. The major industries served by the company are Nzoia Sugar Company, Pan Afrika chemicals and Nzowasco.

There is high demand of electricity in the county but the inability to purchase the required infrastructure due to the high costs involved is the problem. The supply is deemed to be sufficient for the whole population. The demand for firewood is high considering it is a cheap source of energy although the supply is depreciating with the uncontrolled cutting of trees. The Kenya Power and Lighting Company has emergency services offices i.e. vehicle facilities and personnel located in Kapsokwony and Malakisi to serve its customers and also in solving power problems encountered.

Table 30: County Peak Demand Forecast in MW9

Region	2011	2012	2013	2014	2015	2017	20120	20125	2030
Bungoma	2.9	6.8	7.9	9.2	11.0	14.8	23.0	47.9	100.8
Western Kenya	167	248	281.7	322.7	398.3	513.7	738.2	1352	2510.4
Kenya	955.2	1344.7	1515.7	1850.9	2219.1	2818.7	3933.0	6866.4	12211.5

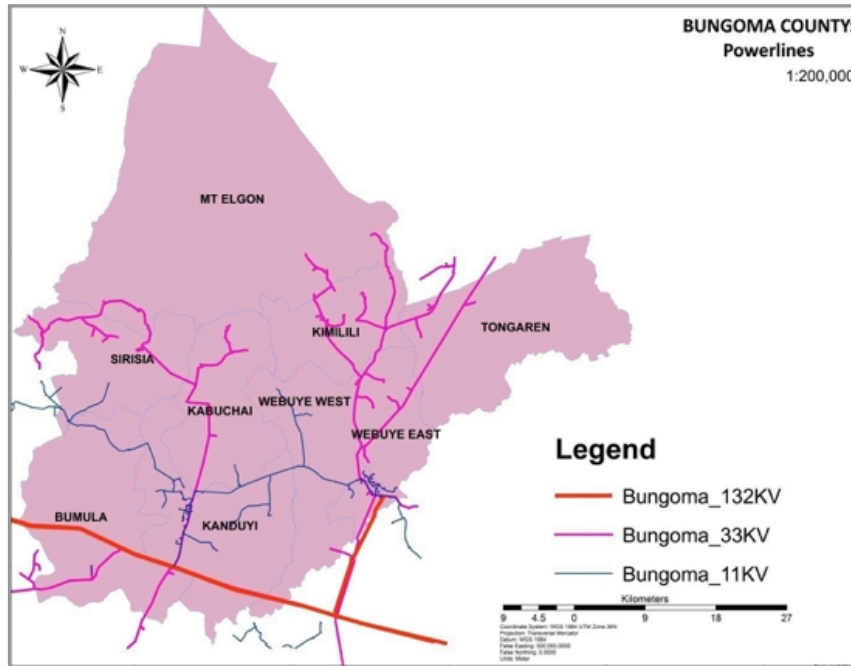
Source: KPLC, 2013

9.2.2 Electricity Infrastructure

A) Urban Situation

Bungoma County is connected to the National Grid. The power supply network in Bungoma County is unevenly distributed, with only 14,000 customers and 12,000 customers in Bungoma and Webuye sub-counties respectively. This is because of the high initial cost of installation of Kshs. 35,000 that is charged by the company. The company has only two offices in the county, one at Bungoma and the other at Webuye sub-county. The company's target is to connect 1,000 users per month.

Map 59: Electricity Network in Bungoma

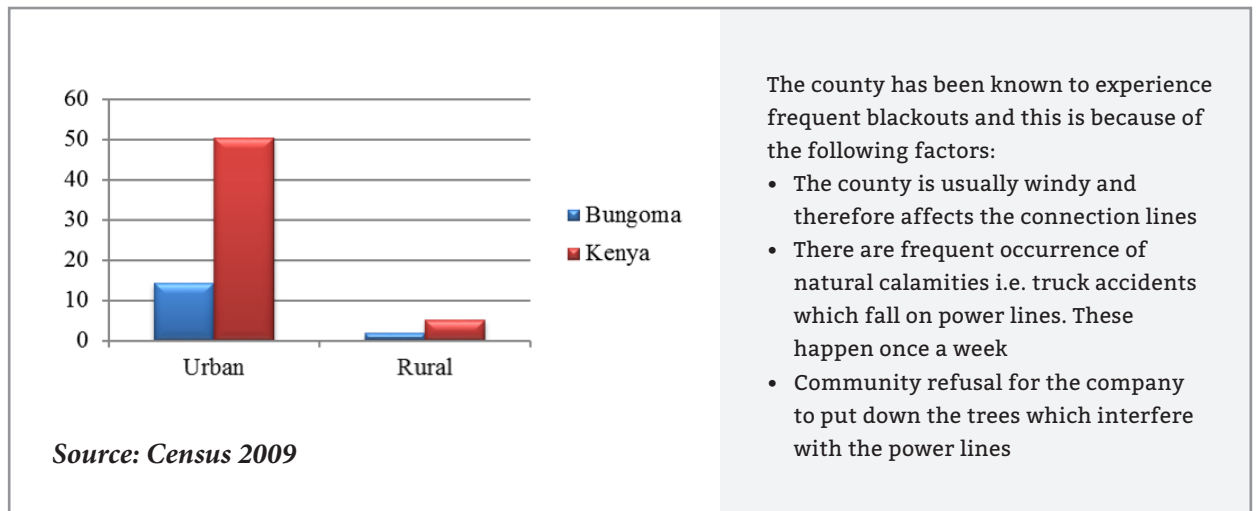


Only 14% of urban population was electrified as by 2009 which is below the average for Kenya

Electricity is available in most of the urban areas. The demand for electricity is high but there are centers except few such as Kipsigon which is currently under installation. insufficient funds to install the necessary infrastructure

Prepared By: Two Ems, 2015

Figure 8: % of Electrified Households



The county has been known to experience frequent blackouts and this is because of the following factors:

- The county is usually windy and therefore affects the connection lines
- There are frequent occurrence of natural calamities i.e. truck accidents which fall on power lines. These happen once a week
- Community refusal for the company to put down the trees which interfere with the power lines

Urban Street Lighting

Street lighting is necessary in urban areas mainly for security and lighting for services in the night. It is available in places such as Bungoma-Kanduyi, Webuye, Kimilili, Ndal, and Bumula. The county government is also in the process of installing in Chwele.

B) Rural Situation

Rural Electrification

Rural population is worse with less than 2% electrified. The Rural Electrification Authority of Kenya has been ensuring electricity is available in all public institutions in Kenya. A few households in the rural have electricity. The KPLC has not covered well the Mt.Elgon region because of the expensive infrastructure required for the terrain of the area.



Figure 9: Rural Electrification in Chelebei

Source: Field Survey, 2015

87% of public primary schools have been electrified by the Authority in Bungoma County with Tongaren Sub County leading by 98% of its primary schools electrified.

Table 31: Public Primary Schools Electrification Status

Sub-County	Electrified	Non-Electrified	Total
Bumula	84	8	92
Kabuchai	78	10	88
Kanduyi	87	5	92
Kimilili	61	12	73
Mt. Elgon	92	20	112
Sirisia	78	9	87
Tongaren	65	1	66
Webuye East	52	15	67
Webuye West	56	13	69
Total	653	93	746

Source: Rural Electrification Authority, 2014

A) RENEWABLE ENERGY SOURCES

As mapped and identified in the natural resources chapter, Bungoma County has green energy potentials, however, only 10% of this is utilized.

I) Hydro-Electric Power

According to the Ministry of Energy, Kenya's installed total large hydropower capacity is 743 MW. Small hydro potential is estimated at 3,000MW, of which it is estimated that less than 30MW have been exploited and only 15MW supply the grid. Small hydro potential is estimated at 3,000MW, of which it is estimated that less than 30MW have been exploited and only 15MW supply the grid.

In Bungoma County, there are two rivers that have potential for small HEP generation, that is, R. Kuywa (Teremi falls), Nzoia (Nabuloye Falls) and Mwihekupo Falls

Some of the challenges inhibiting HEP installation include:

- o High installation costs averaging US\$ 2,500 per KW,
- o Inadequate hydrological data,
- o Effects of climate change, and
- o Limited local capacity to manufacture small hydro power components

II) Biomass

Bio-energy is the energy derived from various sources of solids, liquids and gaseous biomass, including fuel wood, charcoal, ethanol, bio-diesel and biogas. As noted earlier, majority of the households in Bungoma use firewood for cooking.

Currently, biomass energy development is the focus of attention due to dwindling global resources of fossil fuels and rising prices. Their potential to mitigate climate change adds their attractiveness.

Mumias Sugar Company (Independent Power Producer) generates 35MW out of which 26MW is dispatched to the grid. With this regard, Nzoia Sugar Company in Bungoma has a potential of generating power from bagasse.

III) Biogas

Biogas potential in Kenya has been identified in Municipal waste, sisal and coffee production. The total installed electric capacity potential of all sources ranges from 29-131MW, which is about 3.2 to 16.4% of the total electricity production.

IV) Solar

Kenya receives daily insolation of 4-6kWh/m². Solar utilization is mainly for photovoltaic (PV) systems, drying and water heating. The solar PV systems are used mainly for telecommunication, cathodic protection of pipelines, lighting and water pumping. Some of the barriers affecting the exploitation of solar energy resource include high initial capital costs, low awareness of the potential opportunities and economic benefits offered by solar technologies, and a lack of adherence to system standards by suppliers.

The field survey showed that 8% of the households use solar for lighting. The Solar potential for Bungoma ranges between 1-3.75 GHkwh/m²/day which is can be exploited at small scale. Commercial exploitation potential is available at greater than 5GHkwh/m²/day.

V) Wind

Kenya's wind installed capacity is 5.1 MW, operated by KenGen at the Ngong site. High capital cost and lack of sufficient wind regime data are some of the barriers affecting the exploitation of wind energy resources.

From the wind Atlas Map, Wind energy potential is poor in the county i.e. below 90W/m². However, parts of Mt. Elgon have potential.

9.2.2 Ongoing/Planned Energy-Related Projects

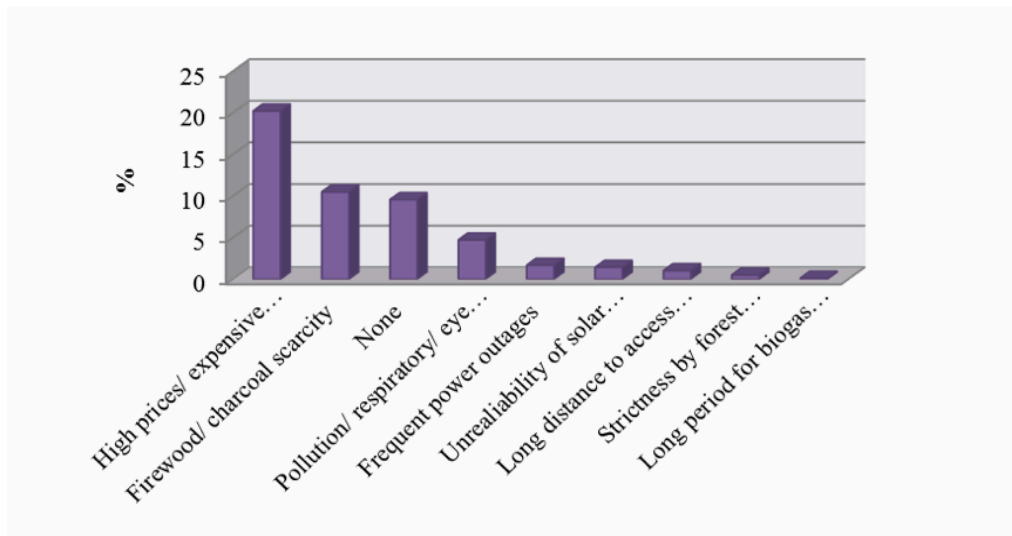
The ministry has put in place strategies to improve access to energy as follows:

- Hydro-power generation is underway in Webuye water falls to put up a power plant. There are assessments on-going to determine the viability of the water source.
- Provision of electric floodlights to all markets in the wards
- Partnership with the KPLC to strategically place transformers to enable easy access to electricity
- Encouraging and sensitization of communities to plant more trees
- Partnership with the county government to assist institutions such as schools to access solar panels or generators through grants

9.2.3 Challenges in Energy

Some of the challenges faced by the households are expensive installation/high prices, scarcity of firewood, and pollution among others.

Figure 10: Energy Challenges at Household level



Source: Field Survey, 2015

9.2.4 POC Analysis of Energy

POTENTIAL OPPORTUNITIES	CONSTRAINTS
<ul style="list-style-type: none"> • Increased investment in power sub-stations and transformers • Investment in alternative sources of energy particularly green energy • Rural electrification programme that is continuing 	<ul style="list-style-type: none"> • High installation costs • Rugged terrain makes installation a challenge and provision of electricity expensive • Unprotection of natural water sources • Limited funding in the sectors

9.3 HEALTH INFRASTRUCTURE

Good Health is an important development outcome in its own right. Illness brings suffering; healthier lives are likely to be longer and more fulfilling. Health contributes to economic development since a healthier population provides labour which is required for a working nation. Good Health leads to improved productivity, improved learning, reduced family size and reduced treatment burden.

The population in a country or region such as Bungoma County cannot be productive if they are not of good health and therefore the provision of health services is very essential. It has been realized that satisfying health requirements contributes towards maintaining and enhancing the productive potential of the people because this is an investment in human capital.

According to the WHO standards, health is defined as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The prescribed doctor patient ratio is 1: 600.

9.3.1 Distribution of Health Facilities

In relation to population, the health facilities are still inadequate in terms of health centres, hospitals and dispensaries, in parts of the region. For example: areas which have rugged terrain such as Mt. Elgon underserved. Dispensaries serve most of the region. This implies that the number and level of services available are limited thus many may not have access to provide certain specialized treatment. However, some of the hospitals found within the nine sub-counties are: Naitiri, Mt. Elgon, Kimilili, Cheptais, Sirisia, Bokoli, Webuye, Bungoma, Bumula and Chwele District hospitals

Table 32: Facilities and number

Facility Type	Number
District Hospital	6
Sub-District Hospital	5
Health Centre	18
Dispensaries	97
Medical Clinics	36
Nursing Home	6
Laboratory (Stand Alone)	1
VCT Centre	1

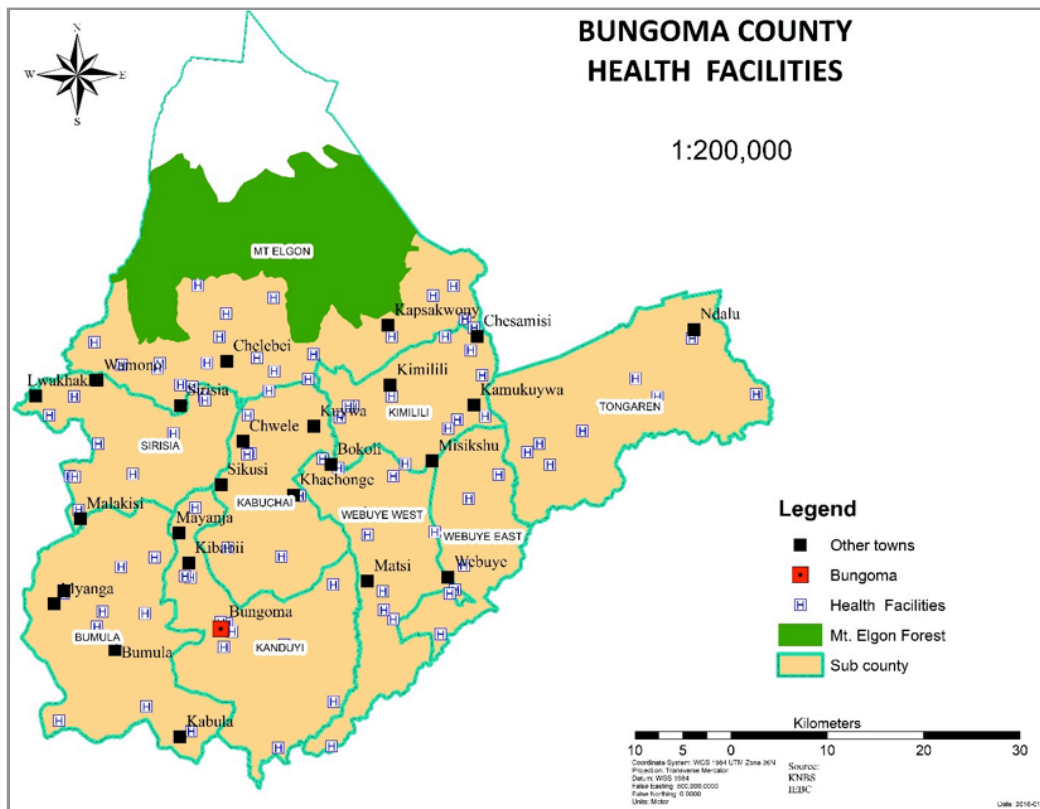
Source: ehealthkenya, 2014

Bed Capacity in Hospitals

Owner	Sub-County	Bed Capacity
County/Ministry of Health	Kanduyi	216
Private Practice - General Practitioner	Kanduyi	40
County/Ministry of Health	Kimilili	68
Company Medical Service	Kanduyi	60
County/Ministry of Health	Mt. Elgon	31
County/Ministry of Health	Webuye	0

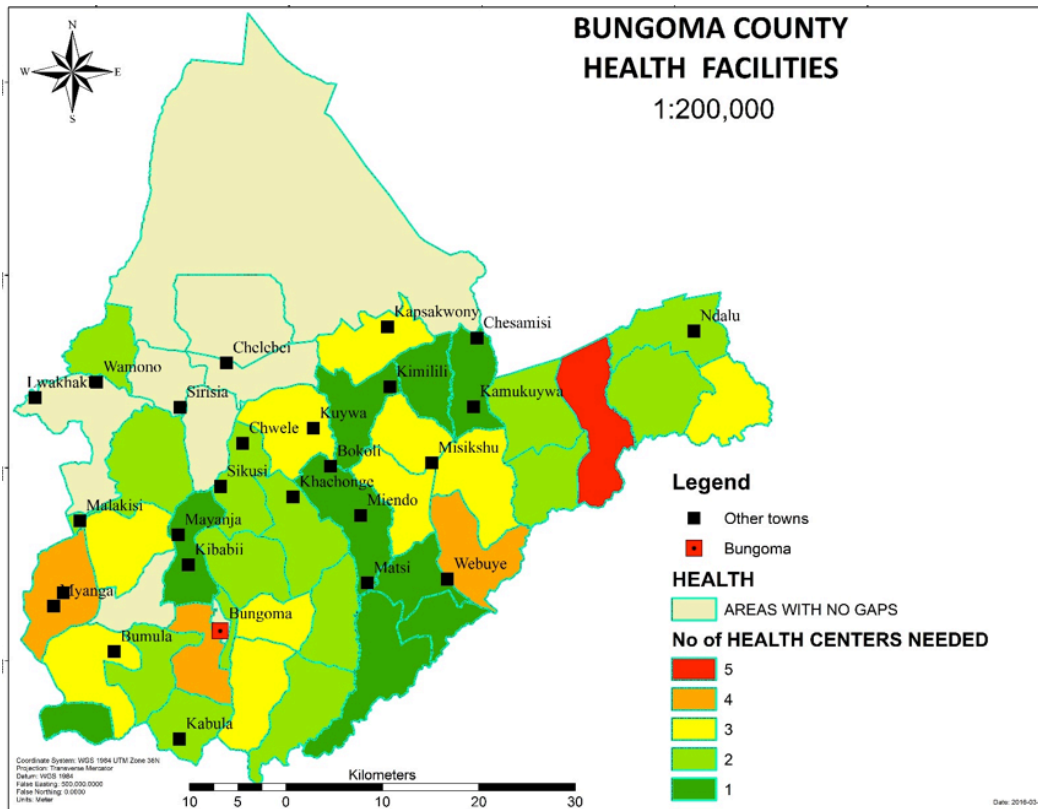
Source: ehealthkenya, 2014

Map 53: Health Facilities distribution



Prepared By: Two Ems, 2015

Map 53: Health Facilities distribution



METHODOLOGY: GAP ANALYSIS

This analysis involved identifying any gap in the number of health Facilities at the ward level

This was achieved by getting the difference between the current numbers of health facilities with the ideal number of in the area

The ideal number was arrived at by dividing the number of people in the ward with the recommended catchment population for the institution

The gap= current number of health facilities in the ward- ideal number of health centres

Ideal number of health center = total population per ward / 8000

CATCHMENT POPULATION FOR A HEALTH CENTER= 8000

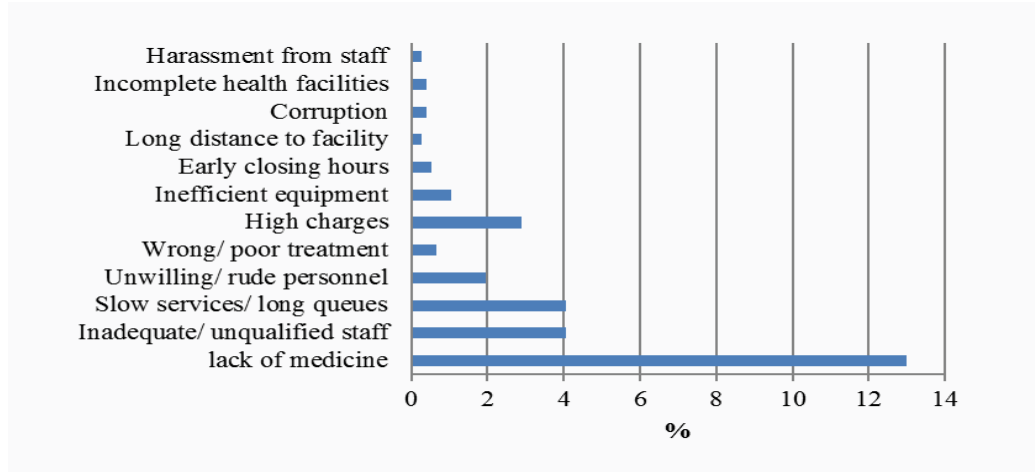
Prepared By: Two Ems, 2015

Urban Healthcare	Rural Healthcare
<ul style="list-style-type: none"> • Generally well served • Easily accessible due to existing infrastructure • Expensive services for some • Long queues • Poor services from impatient staff 	<ul style="list-style-type: none"> • Underserved • Difficulty in accessing or inaccessible health facilities due to poor state of infrastructure • Poorly equipped and stocked with medication • Dilapidated health facility infrastructure • Understaffed

9.3.2 Health Services

The provision and access of health care services in the County is limited due to various constraints. Based on respondents sampled, these include:

Chart 46: Health care Challenges



Source: Field Survey, 2015

Other challenges faced in provision of health services in the county

- Limited funding
- Inadequate medical personnel
- Poor infrastructure which hinders easy access to the health services
- Inadequate and uneven distribution of health facilities

Disease Prevalence

The common prevailing ailments in the county are: malaria, diarrhea, accident traumas, pneumonia, malnutrition, worm infection and jiggers. The prevention and treatment mechanisms that have been put in place by the ministry include:

- Setting community health units charged with resources to aid in the villages
- Promoting health education to the people mainly on the preventive aspects
- Provision of rehabilitative services to traumatized victims
- Defective mechanisms depending on the ailments

Table 33: Health Indicators

Health Indicator	Bungoma County	Kenya
Fully Immunized population <1yr (2012/2013)	80.9%	64.0%
HIV prevalence	3.5%	6.2%
People living with HIV in 2011	27,800	
TB cases in every 100,000 people(2012)	199	39.0
Malaria burden (2012)	184.6	27.7

Source: County Fact Sheet 2013

Physician, nurses and Bed Capacity

Indicator (2007-2013) Averages	Kenya	World	Euro Area	Norway	Bungoma (2015)	Bungoma (2025) - Required
Physicians (per 100,000)	20	150	330	430	4	2500
Nurses (per 100,000)	90	330	750	1730	45	
Bed Capacity (per 100,000)	140		560	330		

Source: Adopted from World Bank, 2015

9.3.3 POC Analysis of Health

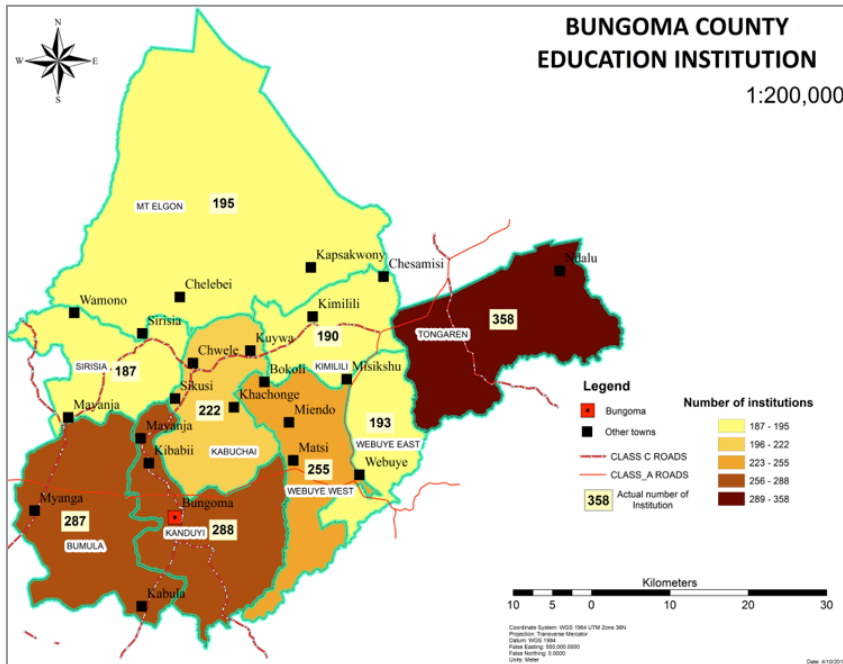
POTENTIAL OPPORTUNITIES	CONSTRAINTS
<ul style="list-style-type: none"> • Employment of more healthcare personnel • Face lifting of all health facilities in the county • Establishment of mobile clinics to cater for the underserve, ragged terrain areas Setting up of more community health units • Scale-up of ambulance services in the county • On-going recruitment of qualified medical staff personnel • Partnership with development partners such as WHO in improving the health indicators 	<ul style="list-style-type: none"> • Inadequate number of health care personnel in the county • Poor referral system due to lack of specialized services • Poor Infrastructure • Unreliable supply of health commodities (drugs and non-pharmaceuticals)

9.4 EDUCATION INFRASTRUCUTRE

Education is an integral part of the economy and society. It has been identified as one of the cornerstones to improve the living standards of members in the society. It is therefore important in planning to make provision for education facilities and services which will translate into higher rates of innovation, higher overall productivity and faster introduction of new technology.

9.4.1 Education Facilities Distribution

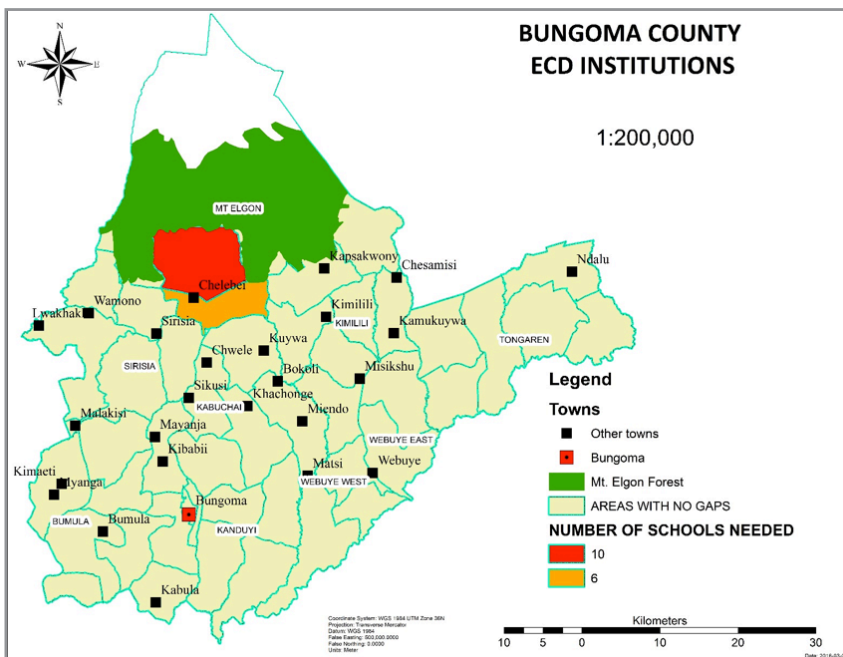
Map 63: Education facilities Distribution (Primary and secondary schools)



Primary Education

- Primary schools- 1,000
- Public-699
- Private-301
- Teachers- 9,127
- Male-5100
- Female-4027
- Teacher/Pupil Ratio - 1:51
- Enrolment - 449,147
 - Boys - 241,417
 - Girls - 207,730
- Gross enrolment rate- 142
- Drop-out rate- 8%
- Average Years of attendance- 8
- Completion rate- 90%
- Retention rate- 88%
- Transition rate- 85%

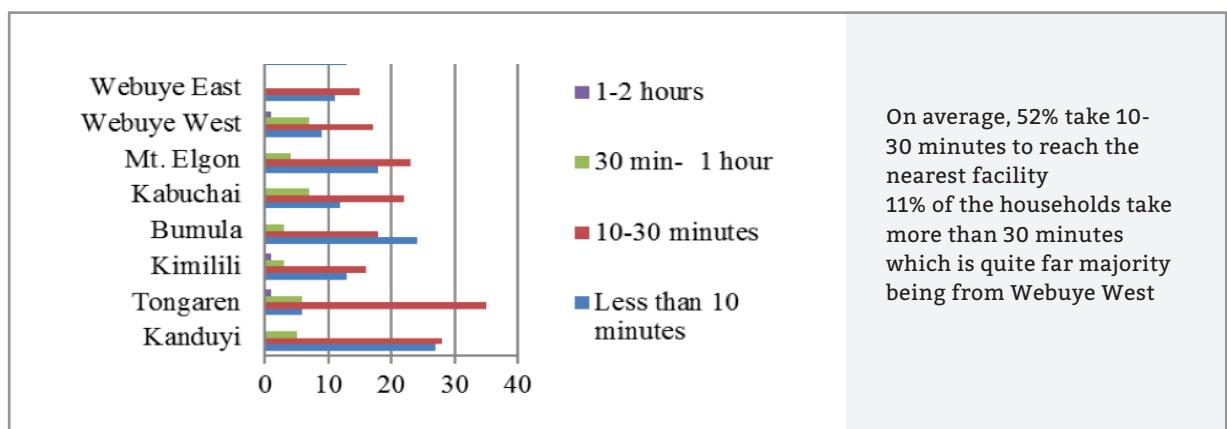
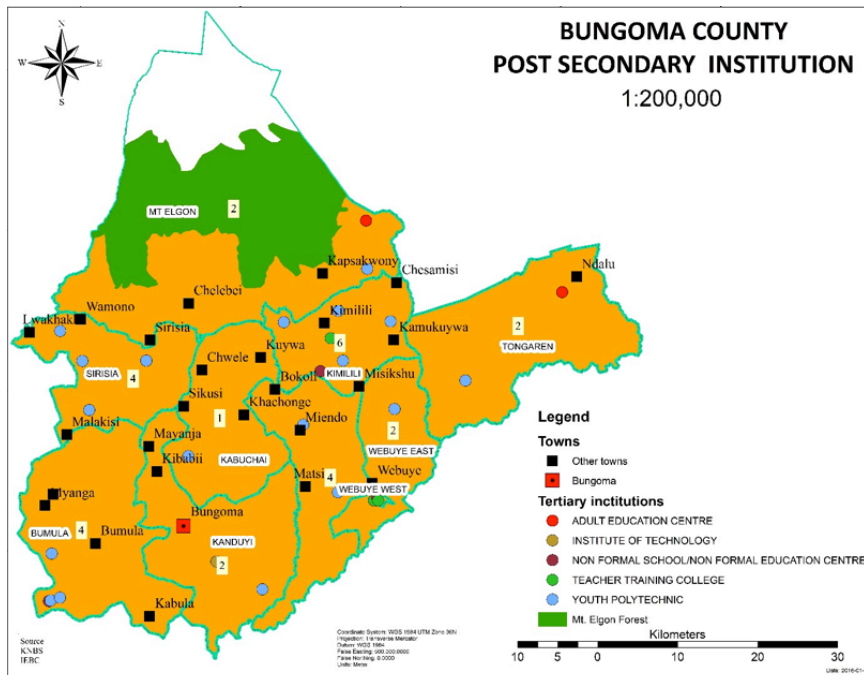
Areas such as Tongaren, Kanduyi, Bungoma, Webuye, Kimilili and parts of Bumula are generally well served with education facilities. Sirisia and Mt. Elgon have the least number of institutions



GAP ANALYSIS

ECDE is a County government Function Areas around Chelebei in Nt. Elgon are poorly served with ECD Institutions mainly because Chelebei is a declining Town There is need for increased investment in Chelebi Town and hence attract better social infrastructure

Tertiary institutions



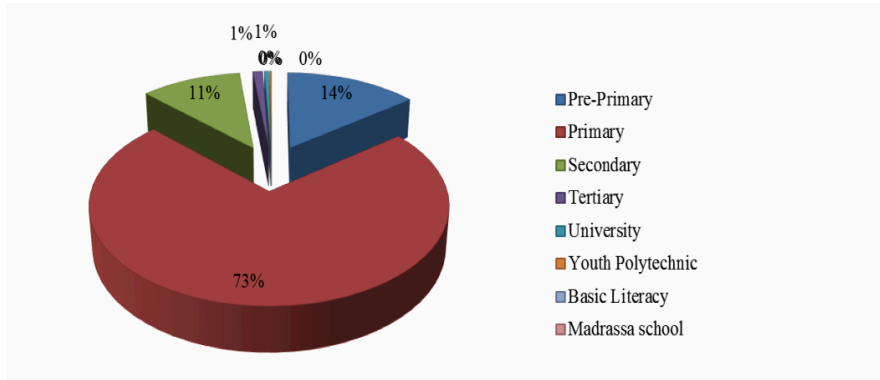
Source: Field Survey, 2015

9.4.2 Education Services

Bungoma County has a drop-out rate of 22% in the transition from primary to secondary education. This is influenced by lack of school fees to proceed to secondary education. The drop-out rate by the girls is 15% and 10% by the boys.

This is because of early pregnancies by girls and early marriages experienced by both genders. The county experiences low enrolment of the girls because of early marriages after the primary education. The enrolment of the boys is also relatively low because of child labour whereby the boy child is forced to go look for alternative means of livelihood i.e. becoming a boda driver.

Chart 45: % of Population with Education Level attained



Source: Kenya Census Report, 2009

9.4.3 GAP Analysis in Education Infrastructure

Urban Education	Rural Education
<ul style="list-style-type: none"> • Generally well served • Easily accessible due to existing infrastructure • Expensive services for some 	<ul style="list-style-type: none"> • Inadequate number of government quality education officers to inspect on the status of the schools in the county • Understaffed teachers in the schools by the government • Ignorance by parents who do not value education • Unmotivated staff due to low payments awarded • Expensive for some • Difficulty in accessing or inaccessible education facilities due to poor state of infrastructure • Poorly equipped and stocked with learning infrastructure • Dilapidated education facility infrastructure • Inadequate funds for bursaries

9.4.4 POC of the Education Infrastructure

POTENTIAL OPPORTUNITIES	CONSTRAINTS
<ul style="list-style-type: none"> • Employment of more personnel • Education as a function to spur economic development. E.g: Kibabii inducing growth of other related services like Investments in Hostels, restaurants and recreational facilities to serve the upcoming population • Partnership with development partners to improve the education sector 	<ul style="list-style-type: none"> • Inadequate number of personnel in the county • Infrastructure- lack of classrooms, and other physical facilities such as laboratories, electricity and roads to facilitate learning in the area • Inadequate teachers and personnel in the various schools • High poverty levels at the household level- majority of the households fall below the poverty line thus lack of priority in the education

9.5 ICT

ICT is an umbrella term that includes any communication device or application encompassing radio, television, cellular phones, computers and network hardware and software and satellite systems as well as various services and applications associated with them. It is very key for modern economy.

9.5.1 Telecommunication

Internet

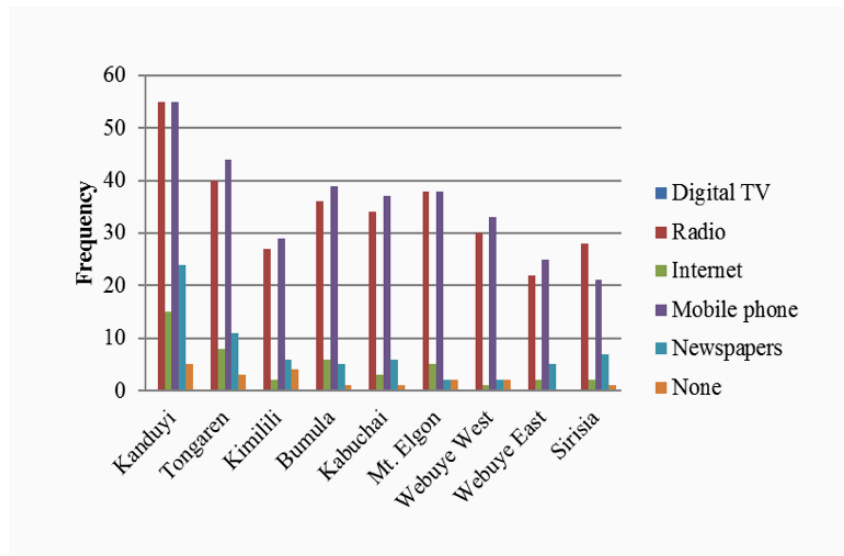
Accessibility to internet is a necessity in this generation for accessing global information. Internet is found only in major urban areas such as Bungoma, Webuye and Kimilili.

Mobile

Majority of the residents have mobile phones or can access a mobile phone to make a call. The only challenge for some households is unreliability of network in some places such as Kipsigon and lack of power to recharge the mobile phones.

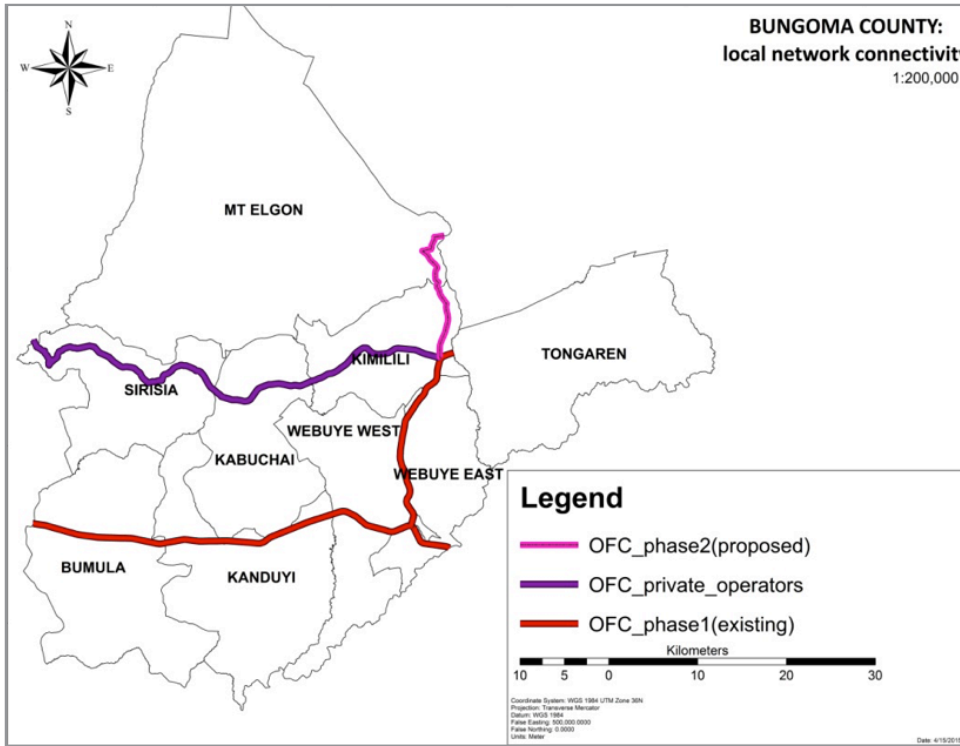
As the chart below shows, majority of the households can access mobile phones and radio. Access to newspaper is very poor limited mostly to those residing near major urban centres.

Chart 43: Access to ICT per Sub County



Source: Field Survey, 2015

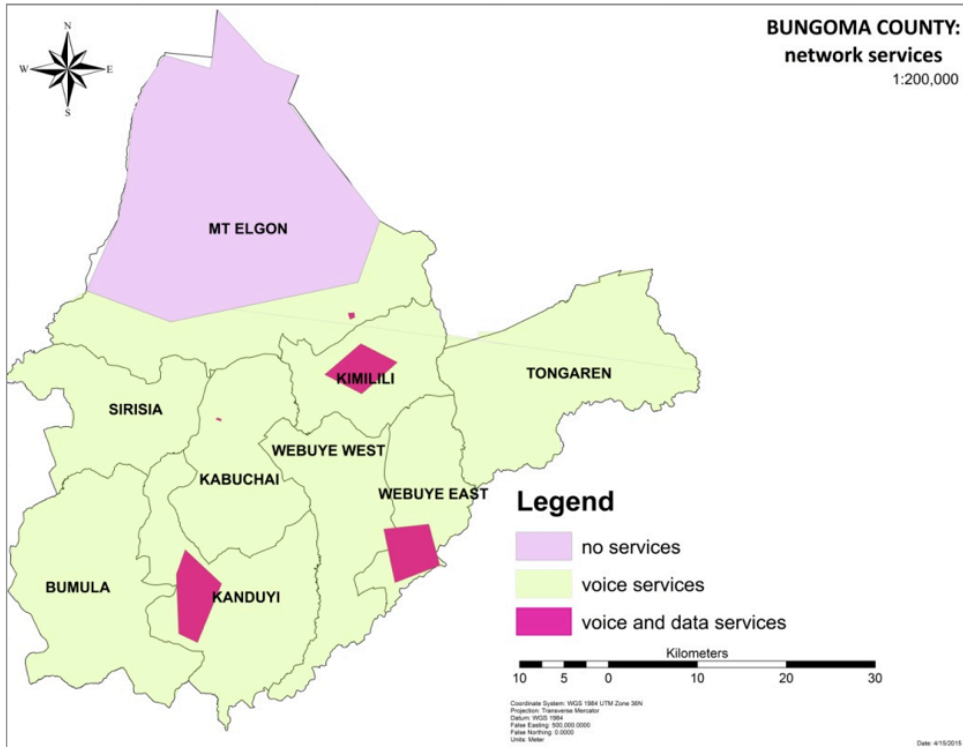
Map 60: Existing and Planned Fiber Optic Network



The laying of the fibre optic cable within Bungoma County is underway. Phase one is complete and existing along the major highway of A104 and A1. Internet connectivity along these major roads and the urban centres they are affiliated with is very good. Rural connectivity is yet to pick up and more investment in the sector.

Authority of Kenya, 2013

Map 61: Network Service Access Gaps



There are places such as Kipisgon who have difficulty in accessing both voice and data services. Voice and data services are available mostly in urban areas. Weak reception of Kenyan radio stations at some places such as Lwakhakha.

9.5.2 Mass Media

Print media

Newspapers are available mostly in major urban centres. Some parts of Mt. Elgon do not easily access print media.

Broadcast

Apart from National Broadcasters such as KBC, NTV, Citizen Televisions and radio, there is a local radio station known as West Fm which discusses general dailies issues affecting the people of the County. It broadcasts both in Kiswahili and Luhya.

According to the Bungoma Communication Sectoral Plan, none of the established privately owned media houses with a nationwide outreach operate a fully-fledged news bureau in the region. These media houses rely on stringers based in the county's major urban centers to feed them with information on developments that warrant coverage. Only the government owned Kenya News Agency (KNA) operates a news bureau from Bungoma Town and Kapsokwony in Mt Elgon.

9.5.3 Courier Services

Postal Services

There are post offices in the County found mostly in major urban centres.



Plate 15:
Posta at Ndalu

Private Courier Services

Private courier services are increasingly being used to transport goods and parcels. These private couriers comprise of G4S, BM, and Fargo among others. Private couriers are preferred mostly for security reasons.

Bus/Matatu Saccos

The use of Matatu Sacco companies is also on the increase. Some people prefer to use because of their urgency and are also cheaper as compared to courier services.

9.5.4 GAP Analysis of ICT

Urban ICT	Rural ICT
<ul style="list-style-type: none"> • Generally well served • Fiber Optic route alignment is present along urban centres such as Bungoma, Kanduyi and Webuye which are located on major highways • Need to ensure efficiency of the Internet services within the urban areas • High use of social media for communication 	<ul style="list-style-type: none"> • Underserved • Poor internet connectivity particularly due to slow installation of the Fiber Optic Cable in rural Bungoma • Poor telecommunication infrastructure for both mobile and internet • Need for increased investment in the rural ICT sector • Low use of social media • Need to capacity build community on benefit, importance and use of internet for knowledge management

9.5.5 POC Analysis of ICT

POTENTIAL OPPORTUNITIES	CONSTRAINTS
<ul style="list-style-type: none"> • Opportunities for encouraging use of social media • Investment in related services like increase cyber cafes • Mobile service providers to increase investment in lagging areas such as Mt. Elgon to improve mobile network services (GSM) 	<ul style="list-style-type: none"> • Poor technological know-how in rural areas on use of social media • Poor infrastrucutre such as electricity in rural areas hampers efficiency of the telecommunication industry

9.6 RECREATION AND COMMUNITY ACTIVITIES

Community activities comprise of meeting points such as social hall, library, and parks, among others. Libraries are instrumental in transforming the livelihoods of people through provision of information resources. Recreation and sports are also part of community activities. Recreation is the refreshment of one's mind or body through activities that stimulate or amuses. The recreation areas here include:-

- Areas of natural scenic beauty in the urban region;
- Ridges in the urban region that have been tree lined;
- Water courses with demarcated riparian reserves and forest reserves
- Forest and nature conservation areas

Recreation facilities mainly fall under urban facilities.

URBAN RECREATION AND COMMUNITY FACILITIES

A) Playgrounds

Playgrounds are mostly found in education institutions.

B) Libraries

National/Public library

There is one national library in Bungoma County which is situated in Kimilili.

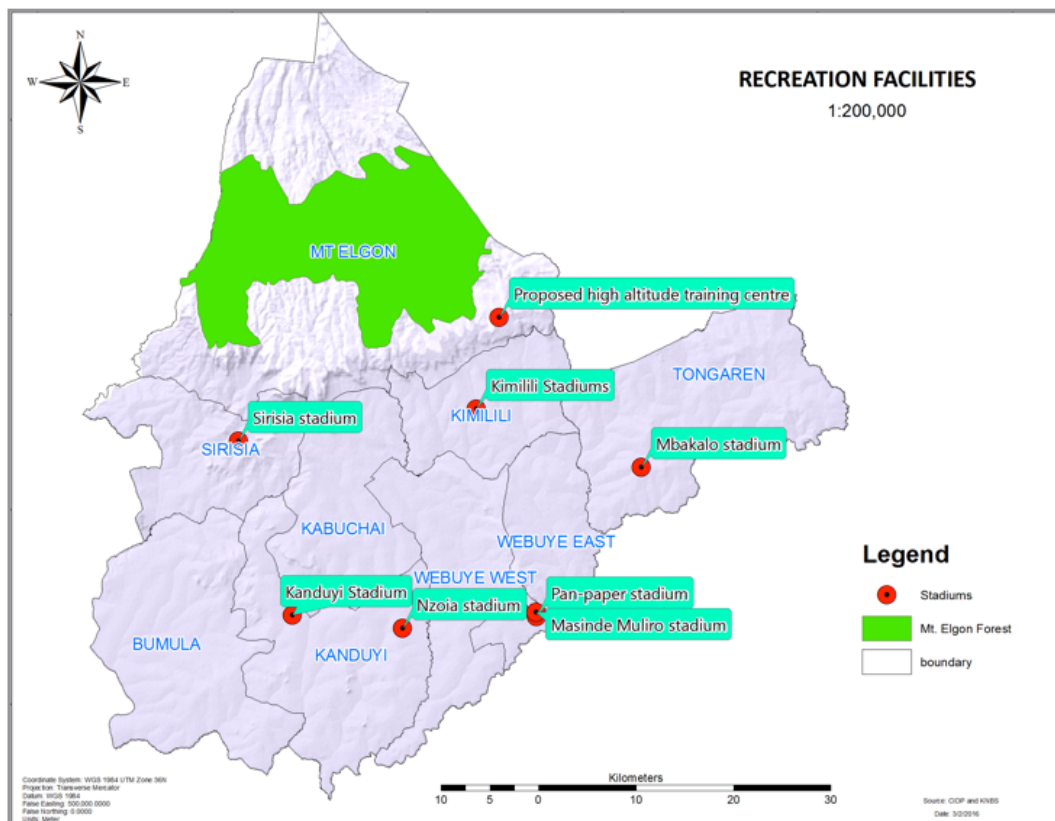
Community library

There are no community libraries. Most institutions of learning comprising of universities, colleges and secondary schools have library within for academic purposes.

C) Designated Open Spaces

The existing stadium//open spaces in the county such as Masinde Muliro stadium, Nzoia stadium, Pan-paper stadium, Mbakalo stadium, Sirisia stadium, Mutala stadium and Mayuba stadium are inadequate and poorly maintained. The county has identified high altitude training centre at Chemoge in Mt. Elgon.

MAP-Recreation Facilities



Prepared by Two EMS Associates, 2016

9.6.1 POC Analysis for Recreation Facilities

POTENTIAL OPPORTUNITIES	CONSTRAINTS
<ul style="list-style-type: none"> • Regular maintenance of designated public open spaces • Increase allocation of segregated litter bins • Increase investment in community and recreational facilities • Development of talent centres for the youth • Provision of mobile library services per ward 	<ul style="list-style-type: none"> • Inadequate facilities especially community libraries, social halls, open spaces/parks • Low prioritization of recreation and community facilities • Poor equitable distribution of recreation and community facilities particularly in rural areas

CHAPTER TEN: ENVIRONMENT

10.1 Overview:

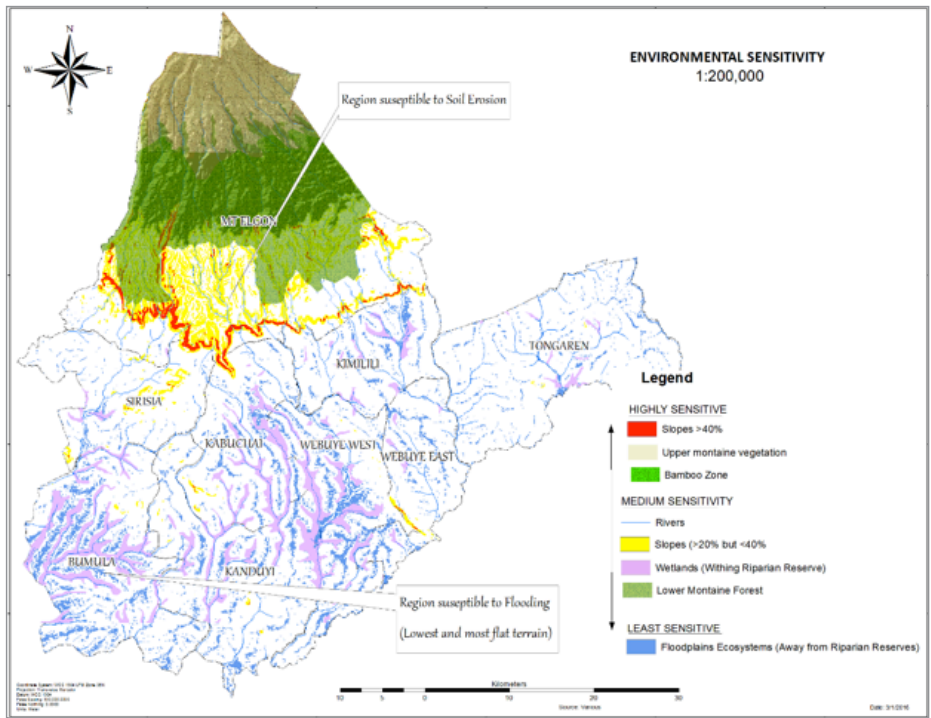
Over the recent years, the population growth rate in the country has been high and increase in population has put tremendous pressure on the country's natural resources, particularly forests, water and majorly land. The increase in population has led to a high demand for land, hence the existing land use practices and land potential has declined. Therefore, infringing negatively towards environmental degradation, mostly the encroachment into the forests zones. This environmental practises has caused economic impacts of climatic disasters such as floods and droughts been more often experienced in the country.

Human activities like clearing of the bush, deforestation and charcoal burning are the main threats towards environmental degradation in the county.

10.2 Environmentally Sensitive/ Fragile Areas

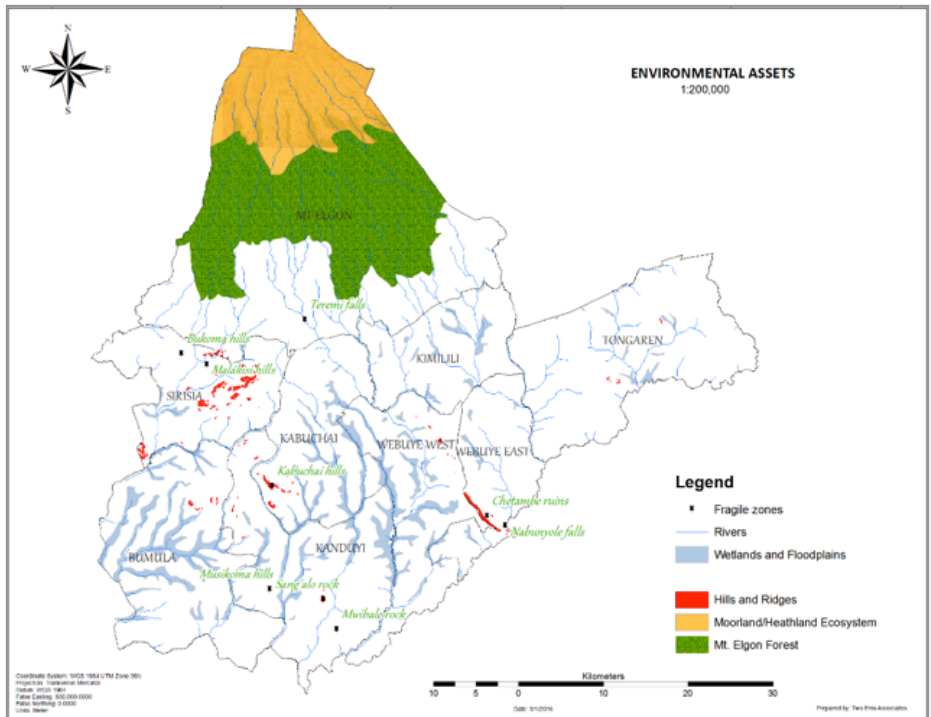
Sensitivity analysis is the investigation of various parameters (e.g. profit, social welfare, expected utility, environmental outcome). Mt. Elgon forest, Chepkitale forest, the hills, Riparian reserves along the rivers and wetlands in the county are in the verge of environmental degradation through human encroachment and increased human activities has led to the cutting down of the vegetation within this areas hence increased erosion activities in the river banks.

Map 27: Environmentally sensitive areas



Prepared by Two EMS Associates, 2016

Map 30: Environmental Assets map



- Functions**
- Mt. Elgon**-The main water tower
 - Act as tourist attraction site which generating foreign/ local revenue.
 - Source of construction material e.g. timber
 - Chepkitale**- Source of food and honey to the Ogiek
 - Wetlands**- Control soil erosion and climate stability, and serve as a habitat for a variety of biological diversity
 - Hills**- Act as tourist attraction site

10.3 Environmental threats and effects

The harmful environmental practices within the County include:

- Forest degradation: this takes place around Mt. Elgon, Mt. Elgon forest reserve, Mt. Elgon national park Chepkitale Game reserve and also within the villages where there are trees
- Poor solid waste management: Centres such as Kimilili, Bungoma, Webuye, Kanduyi, Tongaren, sirisia, Kabuchai and Bumula have a lot of polythene papers disposed of everywhere reducing the aesthetic appeal of such places.
- Land degradation: Quarrying and mining activities within Bungoma County include; sand harvesting, mining materials for brick making. Sand harvesting is common along river banks and areas with sandy soils such as Malakisi and Sirisia and rocky hills
- Poor agricultural Farming methods
- Wetlands encroachment
- Low level of environmental education and awareness in the county
- The pollution levels of River Nzoia is at an estimate of 70%, due to farming activities embarked on by the residents who own farm lands near the river. River Khalaba follows with estimate pollution levels of 65%. The river is highly contaminated with waste from commercial activities in the centres.

10.4 Climatic Change:

10.4.1 Overview:

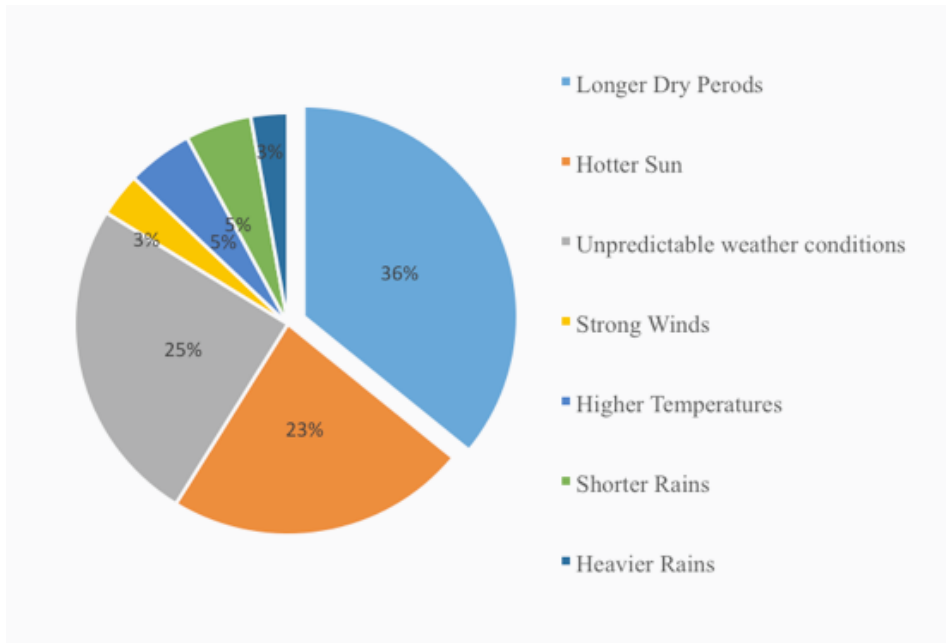
Climate change is one of the major environmental problems that the world is currently facing. Climate change has adversely affected the development in third world countries and developing countries hence, increased levels of poverty with the countries struggling to provide the basic needs to its population due to extreme levels of poverty.

The effects of climate change have affected the economies of these countries with very little economic growth taking place in the country. On the other hand, natural resources have been diminishing at a very fast rate with little efforts been put in place by the relevant governance of the third world countries and developing countries.

10.4.2 Evidence of Climate Change in County:

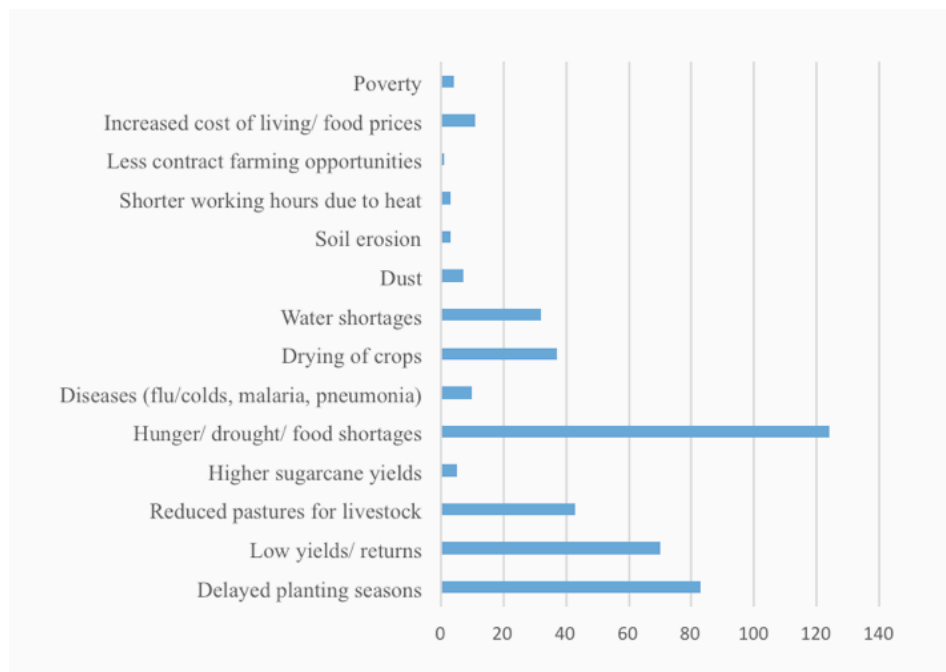
Some of the pointers towards climate change have been analysed through variation in the trends in temperature and rainfall.

Chart 2: Evidence of climate change



Results from the field study, 2015 as shown in the chart below, indicate that 36% experienced longer dry periods due to climate change, 23% hotter sunny days, 25% for unpredictable weather conditions as being the major changes in the climate.

Graph 1: Impacts of climate change



Source: Field Survey, 2015

From the field survey as shown in the graph above, 29% of the respondent argued that the major impacts of climate change is food shortage, 19% delayed planting season while 16% argued that there has been low yields among other effects.

The major adaptation mechanism used to address climate changes within the area include; planting of trees, timely farm preparation, advance buying and storage of food, irrigation, diversifying of incomes and planting drought resistant crops. Others include; Drilling boreholes, good water management, and adoption of new farming methods training etc.

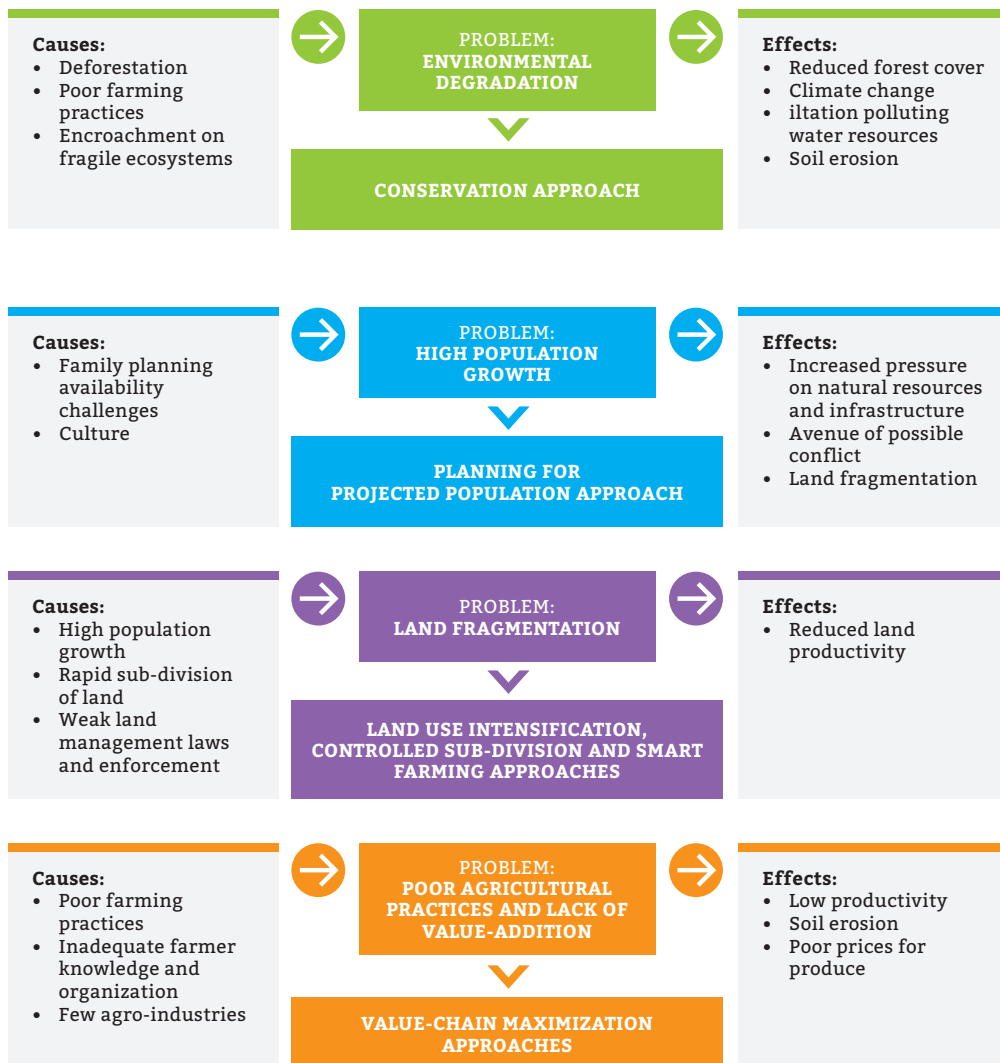
10.5 POC Analysis

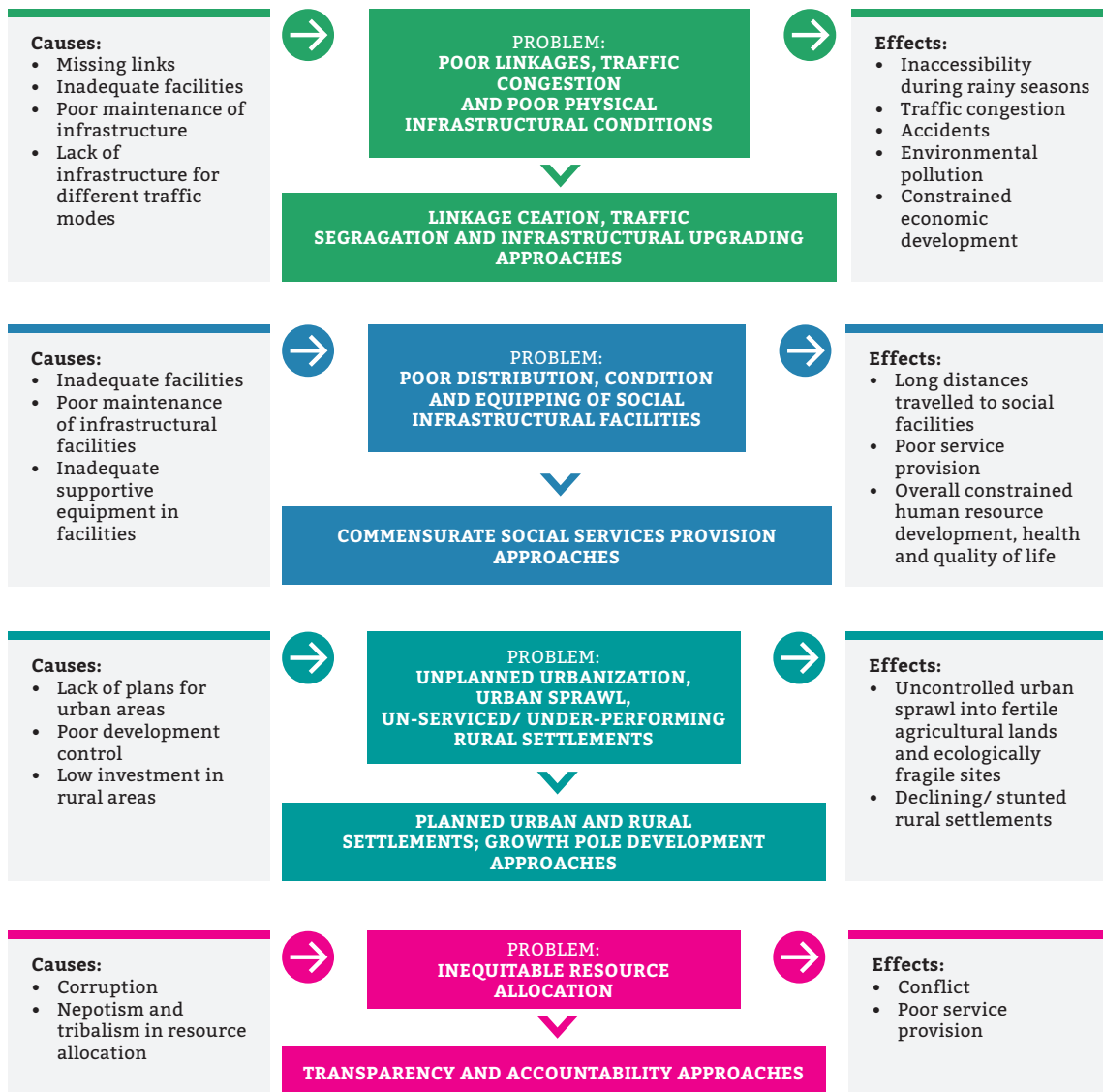
	Potential/opportunities	Constraints
Climate Change	<ul style="list-style-type: none"> Green energy- Clean/ green and renewable energy sources, such as wind and solar, can be used to be alternative source of energy in the county to meet the high demand for energy. Use of these sources of energy will also reduce the overdependence of hydroelectric power whose supply in the county contributes to only 5% of the total energy resource in the county. Rain water harvesting- The heavy rains experienced in the county if fully tapped through rainfall harvesting can curb the shortage of water in the county. The runoff water experienced in some areas can be stored in dams and used during the dry seasons for both domestic use and commercial use. The water in the dams can also be used in the generation of hydro power. Irrigation- Irrigation is another way through which farmers can adopt as a climate change adaptation measure to ensure food security in the county. This adaptation measure will also ensure the improvement of family livelihoods in the county. Conservation agriculture- Conservation agriculture which involves minimizing soil disturbance and ensuring permanent soil cover, through the use of mulch and using a blend of crop rotation or inter-cropping, would ensure the soil fertility is kept. 	<ul style="list-style-type: none"> Difficulty in prediction of climatic seasons
Environmental Status	<ul style="list-style-type: none"> Hydropower, irrigation, fishing potential in the major rivers. Timber harvesting through agro forestry 	<ul style="list-style-type: none"> Encroachment of the riparian reserves. Pollution of the rivers by human activities. Deforestation of the forests.



CHAPTER ELEVEN: PROBLEM AND OPPORTUNITIES SYNTHESIS

In preparing a plan for Bungoma County, it is critical to find solutions by first mapping out the anatomy of cause and effect of the challenges ailing the County. This approach breaks down the problem into definable manageable chunks enabling prioritization of factors for planning. From the synopsis in the previous chapters, the problems in Bungoma County can be mapped out as illustrated below with the resultant proposed thematic solution approach:





The County however has a rich diversity of opportunities that this CSDP will seek to take advantage of:



CHAPTER ELEVEN: STRUCTURE PLAN

11.1 PREAMBLE

11.1.1 What a Structure Plan Is:

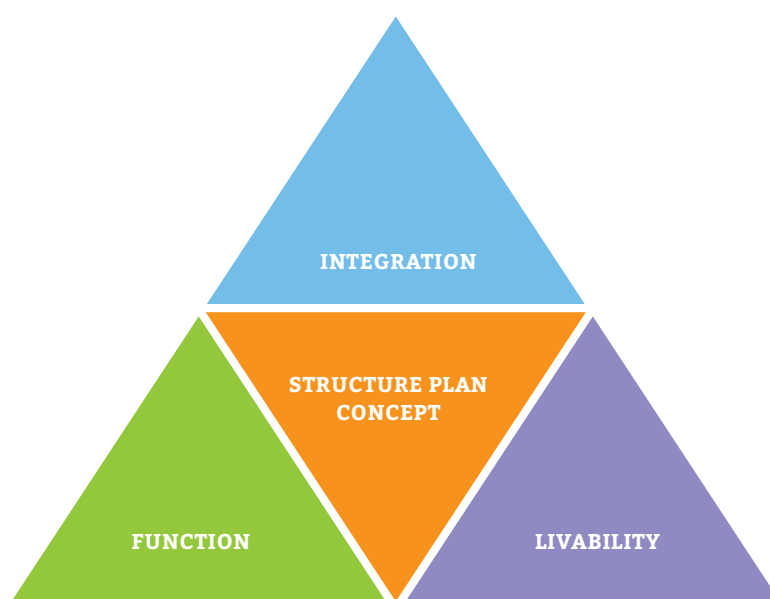
A structure plan is a framework that sets out strategic planning policies on space, broad zoning document, as well as a policy instrument. The structure plan comprises of a physical zoning plan map indicating the broad land uses, transportation connectivity proposals, existing and proposed infrastructure facilities and areas of economic and environmental activities, following an integration of various alternatives envisioned. Policies and standards are also assigned to each proposed land use to ensure harmony and equity upon implementation of the plan, through the next ten years.

This structure plan is a result of comprehensive analysis of the county using various tools such as land capability analysis, land availability/ suitability analysis, transportation analysis, infrastructure gap analysis, human settlements analysis, and environmental sensitivity analysis. In particular, this section was deeply rooted in inputs collected from rich public participation through sub-county-specific forums for the general public, meetings with both the county executives and county MCAs, as well as technical validation meetings involving both national and county government planners.

11.1.2 Rationale for Preparation:

As illustrated by the analysis in the previous chapters, Bungoma County is facing a myriad of challenges that if unchecked could have catastrophic consequences into the future. The consequences of business as usual would be increased forest degradation, uneconomic land sizes, and unchecked urban sprawl all of which would have devastating impacts on incomes, food security and overall quality of health of county residents. A spatial structure plan is therefore becomes important because the various county problems all have an implication on land (are either land use problems or land related problems), and therefore require a land-based solution.

This structure plan therefore is being prepared with the aim of guiding integrated development of all sectors on space, which it desires to achieve through three key pillars:



Preparation of a structure plan is also crucial as there exists a need to provide a link to higher level plans, as well as providing an anchor for detailed planning within other lower-level plans. At the national level, this plan shares the national objectives of competitiveness (through selective concentration of activities), spurring economic development, conserving the environment and creating livable human settlements. At the county-level, this plan aims to create sectoral integration across the economic, social and environmental sectors.

11.1.3 Elements of a Structure Plan:

There are three main elements of a structure plan as depicted below:

LAND USE PLAN	Depicts the spatial layout of the proposed land uses
LAND MANAGEMENT POLICIES	Highlights the behaviour and practices to be promoted for land utilization
LAND USE POLICIES	Identify the standards guiding use of land within each proposed land use category

11.3 LAND MANAGEMENT POLICIES

Land management policies form an important instrument that guides the general behavior over the use of land

The overall land management policies will include:

1. ENVIRONMENT	<ul style="list-style-type: none"> • Non-approval of development around forests, rivers and wetlands/ swamps • Restriction of development to approved uses only along immediate boundaries of fragile site buffers
2. TRANSPORTATION	<ul style="list-style-type: none"> • Non-approval of encroachment/ encroaching use on transportation way-leaves.
3. INFRASTRUCTURE	<ul style="list-style-type: none"> • Non-approval of encroachment/ encroaching use on infrastructure way-leaves. • Restriction of development to approved uses within the vicinity of social infrastructure facilities
4. ECONOMY	
a). Agriculture	<ul style="list-style-type: none"> • Restrictions on uneconomical sub-division of agricultural land. • Non-approval of encroachment/ encroaching urban settlements use of the highly capable agricultural land areas.
b). Trade	<ul style="list-style-type: none"> • Encouraging compact market development
c). Industry	<ul style="list-style-type: none"> • Restrictions on location of industries near densely populated zones.
d). Tourism	<ul style="list-style-type: none"> • Restriction of development around scenic sites to eco-tourism developments only.
5. URBANIZATION	<ul style="list-style-type: none"> • Encouraging compacting of urban areas. • Enforcement of urban fringes/ edges. • Promotion of linear development along transportation corridors.
6. PUBLIC LAND	<ul style="list-style-type: none"> • Immediate inventorizing and periodical review of the state all public land in the county. • Retention of all public lands under the respective government ownership unless their disposal will serve an overarching County/ national interest.

11.4 LAND USE STANDARDS

Detailed standards for each proposed land use category in the structure plan have been attached below:

1. UNDEVELOPED LAND/NATURAL

Table 2: Land Use Planning Standards

ZONES:	STANDARDS:
Riparian Reserves:	<ul style="list-style-type: none"> • Must be a minimum of 30 metres of land on each side of a watercourse (both seasonal and perennial rivers). • Natural flow of river and tributary should be preserved and conserved.
Forest Areas	<ul style="list-style-type: none"> • A buffer zone of 60 metres from the forest reserve edge (including indigenous and plantation forests) should be maintained. (Can have compatible land uses such as Nyayo Tea Zones).
Wetlands	<ul style="list-style-type: none"> • A buffer zone of 30 metres from the high water mark edge should be maintained. • Development permission for wetland zones must be sought. • Prohibited activities include car washing, location of sanitary facilities and solid waste disposal as they can cause pollution.
Slope Areas	<ul style="list-style-type: none"> • Development on slopes of over 5 degrees can be allowed but with implementation of control measures. • No development should be allowed on areas with slopes exceeding 25 degrees.
Tourism Zones	<ul style="list-style-type: none"> • Areas of scenic beauty and cultural villages • Provide a buffer zone of 50meters from the edge • The buffer zone can be used for provision of outdoor furniture, management of solid waste and sanitation • Provide major road access to these tourist sites • Provide for land for hotels and lodges • Protected Areas/ National parks and game Reserves • Delineate areas • A buffer zone of 50 meters is recommended around the park. • Forest reserve should be buffered by 60 meter reserve use the reserve on compatible land use. • Wildlife corridor of 3 km. Is recommended
Flood Prone Areas	<ul style="list-style-type: none"> • A buffer zone of 30 metres from the high water mark edge should be maintained. (Uses such as damming and channeling for rice or fish farming are allowed).
Mines and Quarries	<ul style="list-style-type: none"> • A buffer of 1 km from the settlement should be maintained.

AGRICULTURE AND INDUSTRIAL LAND USE

Sector	Planning Provisions	Land Requirements			
Industrial Land Use	<ul style="list-style-type: none"> • General guidelines for industrial area should be guided by: • Separation from residential areas through buffer zones is essential • Site planning and zoning • Minimum plot area and size • Loading area • Vehicle parking spaces • Network system, road hierarchy and transportation • Buffer zone • Workers hostels • Recreation • Shops and hawker centres 	Type of Industry	Land Requirements in ha	Catchment Popn	Min Land Size in Ha.
		Light	4	30,000	0.05
		medium	10	100,000 to 500,000	2
		Heavy	none	Over 1 million	20
	National parks game reserve areas of significant bio-diversity				
Land sub division in rural areas	Agro ecological zone	Minimum Land Holdings			
	Low potential area	4 Hectares 10.0 acres			
	Medium Potential area	2 Hectares 5.0 acres			
	Medium Potential area	2 Hectares 5.0 acres			
Livestock stocking Rates	For sustainable livestock production, the policy uses a unit of livestock intensity/ density per unit area known as stocking unit where a stocking unit is equivalent of a mature zebu cow weighing 300kg or 7 sheep or 7 goats.				

URBAN LAND USE

Categorization of Settlements:

Hierarchy of Centre:	Catchment Population:	Resident Population:	Facilities:
LOCAL CENTRE	5,000	-	<ul style="list-style-type: none"> • Full primary school • Several shops • A dispensary, • A public water supply systems • An open-air market.
MARKET CENTRE	15,000	<2,000	<ul style="list-style-type: none"> • A public water supply • Post office • Telephone facilities • A police post • A local bus service • Other social commercial and local administrative services.
RURAL CENTRE	40,000	2,000 to 10,000	<ul style="list-style-type: none"> • A secondary school of at least form four standard • A health centre with a maternity facilities • Development of better shopping facilities • Markets and Banking facilities • A piped water supply and sewerage disposals systems • Electricity and telephone services postal
URBAN CENTRE	100,000-150,000	5000>	<ul style="list-style-type: none"> • A hospital • A secondary school • Commercial, industrial, administrative and recreational services

Granting of Town or Municipality Status to an Urban Centre:

	Additional Criteria:	Essential Services:	Administration:
<p>MUNICIPAL STATUS</p> <p>Resident Population: 250,000</p>	<ul style="list-style-type: none"> • Integrated Development Plan • Demonstrable revenue collection or revenue collection potential • Demonstrable capacity to generate sufficient revenue to sustain its operations. • Capacity to effectively and efficiently deliver essential services to its residents • Institutionalised active participation by its residents in the management of its affairs; • Sufficient space for expansion; • Infrastructural facilities, including but not limited to street lighting, markets and fire stations and have a capacity for functional and effective waste disposal. 	<p>Planning and Development Control, Traffic Control and Parking, Water and Sanitation, Street Lighting, Outdoor Advertising, Cemeteries and Crematoria, Public Transport, Libraries, Storm Drainage, Ambulance Services, Heath Facilities, Fire Fighting and Disaster Management, Control of Drugs, Sports and Cultural Activities, Electricity and Gas Reticulation, Abattoirs, Refuse Collection, Solid waste management, Air noise, Child Care Facilities, Pre-Primary Education, Local Distributor Roads, Conference Facilities, Community Centres, Hotel Homestays, Guest Houses, County Hospital, Constituent University Campuses, Polytechnic, Training Institution, National School, County School, Municipal Stadium, Stadium, Airport, Airstrip, National Theatre, Theatre, Library Service, Administrative Seat, Financial Hub, Museum, Historical Monument, Fire Station, Emergency Preparedness, Postal services, National TV station, National Radio Station, Regional Radio Station, Community Radio, Casinos, Funeral Parlour, Cemetery, Recreational Parks, Management of Markets, Marine Water front, Animal control and welfare, Religious Institution, Organized Public Transport.</p>	<ul style="list-style-type: none"> • Administered on behalf of the County Government by a Board of a Municipality and a Manager • Board shall be a body corporate
<p>TOWN STATUS</p> <p>Resident Population: 10,000</p>	<ul style="list-style-type: none"> • Integrated Development Plan • Demonstrable economic, functional and financial viability. • Capacity to effectively and efficiently deliver essential services to its residents • Sufficient space for expansion. 	<p>Street Lighting, Cemeteries and Crematoria, Libraries, Heath Facilities, Sports and Cultural Activities, Abattoirs, Refuse Collection, Solid waste management, Air noise, Child Care Facilities, Pre-Primary Education, Community Centres, Guest Houses, Homestays, Polytechnic, Training Institution, County School, Airstrip, Unclassified roads, Museum, Historical Monuments, Postal services, Regional Radio Station, Community Radio, Funeral Parlour, Cemetery, Recreational Parks, Management of Markets, Marine Water front, Animal control and welfare, Religious Institution</p>	<ul style="list-style-type: none"> • Administered on behalf of the County Government by a Town Committee and a Town Administrator • Town Committee shall be a body corporate

Residential Land Use:

Housing Densities:	Proposed Minimum Land Sizes:	Necessary Facilities:
Low Density Areas:	½ Acre (0.2 Ha)	<ul style="list-style-type: none"> • Recreational facilities • Community facilities • Roads and streets • 5% of residential area should be covered by urban agriculture
Medium Density Areas:	1/8 Acre (0.045 Ha)	
High Density Areas:	Below 1/8 Acre (0.03 Ha)	<ul style="list-style-type: none"> • Commercial water points should be provided for informal settlements (At a distance of 500m from each other, preferably occupying an area of 3m x 3m. • 1 toilet block is required for every 100m.
Slum Areas:	0.025 Ha	

Detailed urban area plans should be formulated to determine appropriate maximum plot coverage's, plot ratios, building lines, street widths for residential areas.

Commercial Areas/ CBDs:

	Standards:
Plot sizes	<ul style="list-style-type: none"> Minimum plot sizes should be 0.045 Ha.
Construction standards	<ul style="list-style-type: none"> Building setbacks should be provided to act as traffic islands. The concept of corner shops at each corner plot should be discouraged. Where roads range between 6-18 meters wide the building line shall be 6 m. For any roads above 18m the building line shall be 18m.
Accessibility	<ul style="list-style-type: none"> Remove through traffic by constructing a by-pass or relief road. There shall be no direct access. A provision of accelerated and deceleration lanes should be made at a 100m stretch. Beautification of the main highway- green area network along the highway should be done. Urban road reserves require more generous space provision because of additional street furniture and infrastructural facilities that have to be provided.
Parking	<ul style="list-style-type: none"> Parking facilities should be related to the level of commercial activities created. In central commercial and business zones, parking should be considered, particularly by encouraging storeyed parking in town centers (minimum plot size of 0.025 Ha). For every 100m² of land in the central Business District a minimum of 1½ parking space may be provided except where basement parking is provided. However, for small centers, car park may be provided for every 500m².
Major Shopping Malls	<ul style="list-style-type: none"> Need to be located along major outlet corridors from the town. Minimum plot size to be 4 acres (2 ha). Allow 25% plot coverage Minimum parking space of one and half meters car park space per every 100m² plinth.
Informal Economy	<ul style="list-style-type: none"> Kiosks should only be confined to areas adjacent to markets, bus parks and certain institutions. Minimum size of a kiosk should be 3m x 3m. Specific areas need to be designated for hawking (e.g. hawking grounds or hawking streets).
Pedestrian Separation	<ul style="list-style-type: none"> Provide vertical separation of vehicles and pedestrians by constructing roads and pedestrian's ways at different levels. Interrupt continuity of streets within the centre by bollards or other means. Remove vehicles from street and provide vehicular access and parking at rear of buildings
Sanitation	<ul style="list-style-type: none"> 1 toilet should be provided in all streets in all types of centres.

TRANSPORT

Sector	Planning Standards
Rural road network	<p>International trunk road (class A road)</p> <ul style="list-style-type: none"> • They are provided with a road reserve of 60-110 meters. • No direct access of a property to a Class A road • Buffer zones of 10 meters should be provided all along giving access abutting properties • Developments should come after the buffer zone and should be provided with acceleration and deceleration lanes • The junctions should be at minimum of 300meters • Petrol Service Station can be planned with acceleration and decelerations of 80-100meters after the 10metre buffer <p>National trunk road (class B roads)</p> <ul style="list-style-type: none"> • They are provided with a road reserve of 60-110 meters. <p>Primary roads (Class C roads)</p> <ul style="list-style-type: none"> • All designated urban centers should be linked by means of primary roads as a minimum. They are provided with a road reserve of 40 meters. <p>Secondary roads (class D roads)</p> <ul style="list-style-type: none"> • All designated rural centres should be linked by means of secondary roads as a minimum. They are provided with a road reserve width of 25 – 30 meters. <p>Minor roads (class E roads)</p> <ul style="list-style-type: none"> • They range between 3 to 5 Km and are provided with a road reserve width of 20-25 meters.
Railway	<ul style="list-style-type: none"> • 60m way leave • A buffer of 30m to be reserved on either side of the railway line • Design gradient • Sub-stations should be located in:- <ul style="list-style-type: none"> • Areas of high population concentration Factories, warehousing • Areas of high production Industrial sites • Mining areas.
Airport and airstrips	<p>Basic requirements for location of an airport/airstrip include:</p> <ul style="list-style-type: none"> • Bird strikes-Land use planning around the airport to ensure no dumping sites which attract birds. • Flying objects-Ensure no quarrying or charcoal burning in airport vicinity. • Availability of ample flat land. • Developments in vicinity should not go beyond 15m high. • Location away from town (isolated) • Feasibility should be done to ensure stability of the rock

SERVICES

EDUCATION

Institution	Distribution	Location	Land requirements
Nursery schools	They should be attached to primary schools They follow the pattern of distribution of primary school at 4000 catchment population. A kindergarten independent of primary school should be provided for 2500 catchment population.	Nursery schools should be located within and integral to residential areas. The recommended walking distance is 300-500 meters	The land requirement of 0.15-0.25 hectares is required for every primary school. Similar amount of area land is required for every 2,500 people in low-income areas and 3500 people in high-income areas
Primary schools	The pattern of distribution should be for every 4000 catchment population in rural areas and 3500 population in urban areas	They should be within residential areas related to principle pedestrian networks. At gross densities of 50 persons per hectare and above, each primary school should be within easy walking distance of 250-300 m.	They should cover a minimum area of 3.9 Ha Schools are encouraged to build storied buildings for economy. Teaching staff accommodation if provided, it requires another 0.8 Ha
Secondary schools	The pattern of distribution should be for every 8000 catchment population	They should be within residential areas At gross densities of 50 persons per hectare and above, each secondary school should be within an easy walking distance i.e. relative to pupils' ages of 500 – 600 metre. At gross densities lower than 50 persons per hectare pupils will probably be taken to school by car or by public transport.	It should be considerate of no. of streams: One stream- 3.4 Ha Two streams- 3.5.Ha Three streams- 4.5.Ha

University	<p>The land size for a University should be at least 50 hectares made up of the following:</p> <ul style="list-style-type: none"> • 20 hectares or more to support up to 500 students. • 10 hectares or more for the main campus. • 2 hectares or more for any University land. • 2 hectares or more for open spaces and car parking exclusively. • 2 hectares of land set aside for sewerage plant where there lacks Local Authority sewerage system. • 5 hectares or more for outdoor sports for 500 students. • A University offering agriculture as a course should in addition provide 10 hectares of land for a farm.
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RECREATIONAL AREAS

	Planning standards
Recreation in regional context	<ul style="list-style-type: none"> • Provided with public access of a minimum 9m. • Cater for recreation use by providing car-parking spaces, picnic sites and refuse disposal facilities of at least 0.4 ha. • Compatibility of tourist and recreational developments with surrounding land use patterns, cultural values of the local population and not injurious to the natural attraction of the area.
Recreation at community level	<p>(a) Parks</p> <ul style="list-style-type: none"> • A small area of recreational space within walking distance. • Closely located within community centres and social halls, health centre, local shops, primary and secondary schools. • It can be used as a landscaping buffer between major roads and the housing areas and between industrial areas and housing. • It should include 1-2 playing fields and children’s equipped playgrounds. <p>(c) Social Halls and Community Centres:</p> <ul style="list-style-type: none"> • The pattern of distribution should be for every 20,000 catchment population. • Land requirement of 0.25 hectares to be located in positions along main pedestrian routes

PUBLIC PURPOSE

Sector	Services	Land Allocations
Health services	<p>They should be easily accessible by an ambulance and be provided with basic infrastructural services.</p> <p>Dependent on the level of health service, it is necessary to reserve adequate land for future expansion and for public cemeteries.</p> <p>The public cemeteries should be conveniently located relative to the health facility, major open spaces and other compatible public utilities.</p>	<ul style="list-style-type: none"> • National referral hospital- 20Ha • Provincial hospital- 8Ha • District hospital- 8Ha • Sub-district hospital- 4Ha • Health center- 3Ha • Sub health center- 2Ha • Nursing homes- 0.4Ha • Veterinary clinics-0.1Ha
Community centre	<p>Every center should have a community center which will provide the following facilities:-</p> <p>Library/Resource center Social hall VCT center Public telephone Amphi-theater (Cultural dances, cinema etc.)</p>	<p>The proposed minimum area should be 1Ha.</p>
Police stations	<p>They should be located within residential neighborhoods</p>	<p>Proposed space requirements for the various levels of stations are:</p> <ul style="list-style-type: none"> • Police stations- 2 ha. • Police post- 2.0 ha • Patrol base- 0.2 ha
Fire stations	<p>The land requirement is a minimum of 0.4 hectares to include station, staff accommodation and drilling area.</p> <p>A small fire station would require 1 fire engine and at least 30 staff members to cover a population of between 50,000-100,000 people.</p>	
libraries	<p>The land requirements should be 0.4 hectares for this facility</p>	
Administrative areas	<p>They should be sited away from the administrative zones e.g. professional, manufacturing and utility undertakers' offices to allow close interaction with general public.</p> <p>Factors for their location:</p> <ul style="list-style-type: none"> • Geographical centrality • Spatial compactness • Public parking • Accessibility 	

PUBLIC UTILITIES

Sector	Planning Provisions	Land Allocation																																
ELECTRICITY	<p>Guidelines</p> <p>Source and ability of electricity supply</p> <p>According to electricity usage requirements for domestic, commerce and industry</p> <p>Main receiving sub-stations require a minimum of 5% of the exterior spaces that are reserved for landscape.</p> <p>Main receiving sub-stations 275KV are not suitable to be close to residential areas, open spaces and public facilities. Require buffer zones in between sub-stations and other land uses (about 50m)</p>	<p>Way leave Requirements</p> <table border="1"> <thead> <tr> <th>Capacity of line</th> <th>Way leave</th> </tr> </thead> <tbody> <tr> <td>11 KV</td> <td>10m</td> </tr> <tr> <td>33KV</td> <td>20m</td> </tr> <tr> <td>40KV</td> <td>20m</td> </tr> <tr> <td>66KV</td> <td>30m</td> </tr> <tr> <td>132KV Single circuit towers</td> <td>50m</td> </tr> <tr> <td>132KV Double Circuit towers</td> <td>60m</td> </tr> </tbody> </table> <p>Electricity sub-stations</p> <p>Electricity substation Land requirements Size and function</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Requirement</th> <th>Condition</th> </tr> </thead> <tbody> <tr> <td>Main receiving sub-station</td> <td>1.6 ha</td> <td>Buffer zones</td> </tr> <tr> <td>Main distribution sub-stations</td> <td>45mx45m</td> <td>Building entry ways</td> </tr> <tr> <td>Electricity sub-stations</td> <td>16.5mx13.5m</td> <td></td> </tr> <tr> <td>Single chamber</td> <td>17mx13.5m</td> <td></td> </tr> <tr> <td>Double chamber</td> <td></td> <td></td> </tr> </tbody> </table>	Capacity of line	Way leave	11 KV	10m	33KV	20m	40KV	20m	66KV	30m	132KV Single circuit towers	50m	132KV Double Circuit towers	60m	Type	Requirement	Condition	Main receiving sub-station	1.6 ha	Buffer zones	Main distribution sub-stations	45mx45m	Building entry ways	Electricity sub-stations	16.5mx13.5m		Single chamber	17mx13.5m		Double chamber		
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Water	<p>Provision of these facilities should consider catchments population to be served and the per capita consumption in the relation to the available water.</p> <p>Ground water reserves require buffer zones of 100 meter (bore holes).</p> <p>Springs protection require a buffer zone of 100meters.</p> <p>Tree planting is therefore encouraged in these areas.</p> <p>Water reticulation systems</p> <p>Provide for water facilities such as water intake points, and pipeline way leave.</p> <p>Buffer zones should be provided in areas where these facilities are located.</p> <p>Intake points treatments work and communal water points require buffer zone of 10 meters (radius)</p> <p>Commercial water points</p> <p>Provided for in informal settlements.</p> <p>They should be at a distance of 500m from one another.</p> <p>They should preferably occupy an area of 3 x 3 m.</p>																																	
Sewage	<p>Sewage collection and sewage treatment plants be considered for all settlements with a population of 3,000 or more having an urban layout.</p> <p>In settlements where an integrated sewage scheme is not provided provision should be made for septic tanks.</p> <p>Land requirement for Buffer zones for sewerred areas is 75 square meters whereas for un sewerred areas are 110 square meters.</p>																																	
Garbage Collection	<p>They should be located on the leeward side and have a 100m-protection belt.</p>																																	
Telephone Services	<p>Minimum space of 0.4 hectares and 0.25 acres may be provided for the telephone exchange and booster respectively. Satellite earth stations should have at least 5 acres</p>																																	

CHAPTER TWELVE: SECTORAL DEVELOPMENT STRATEGIES DEVELOPMENT STRATEGIES AND THEIR IMPLEMENTATION

12.1 OVERVIEW

Strategies are the courses of action, geared to the achievement of the vision of any entity. The strategy formulation process has been informed by the existing background documents, synthesis in terms of the potentials, opportunities and constraints of data collected, the consultant's experience and stakeholders' inputs gathered throughout the process.

This chapter provides a summary of the direction of development and desired end state that the people of Bungoma endeavor to attain. It also gives a synthesis of the development strategies per sector that collectively led to the Bungoma County Spatial Plan. The strategies cover all sectors of development which include: Environment, Transportation, Infrastructure, Economic Development, Urbanization and rural development as well as CIP (Capital Investment Programme). Sector specific large scale flagship projects have been proposed. The logic behind these flagship projects is that economies tapped into them translate to higher multiplier effects and hence larger positive gains that trickle down to the population and the regional economy.

12.2 SECTORAL STRATEGIES/ DEVELOPMENT IMPLEMENTATION MATRICES

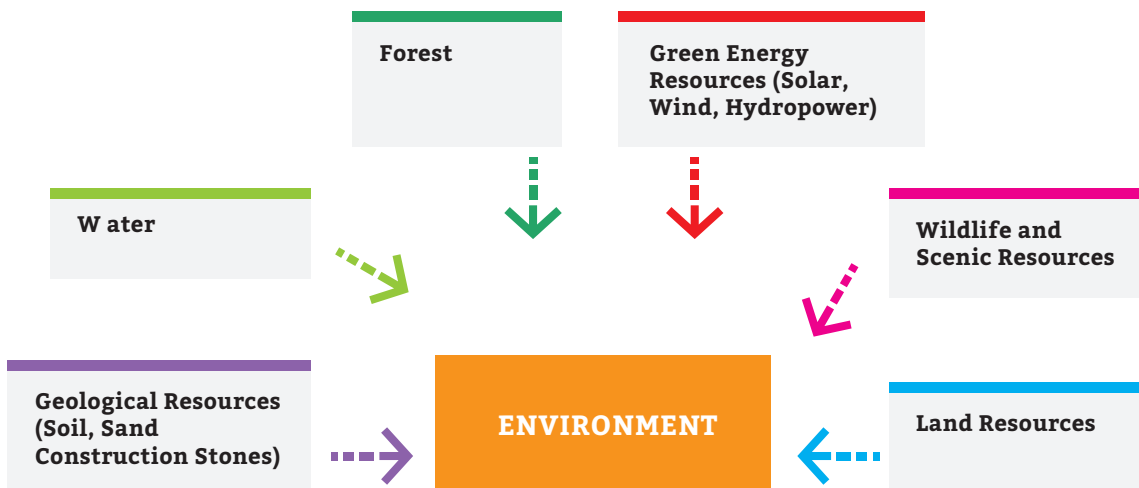
Sectoral strategies cover the following sectors:

Environmental strategies <ul style="list-style-type: none"> • Forest resources • Water resources • Soil resource • Green energy • Wildlife & scenery • Land 	Economic strategies <ul style="list-style-type: none"> • Crop agriculture • Livestock • Trade • Industry • Tourism 	Transport strategies	Rural strategies	Infrastructure <ul style="list-style-type: none"> • Physical Infrastructure • Social infrastructure 	Governance and leadership
		Urbanization strategies			Capital Investment Framework

Some of the programmes/projects that would improve the living standards of the people of Bungoma, and generate wealth for sustained economic growth in the County are as outlined in the tables below:

12.2.1 ENVIRONMENTAL CONSERVATION STRATEGY

An environmental strategy has been proposed, integrating conservation of all natural resources within the county as depicted below:



A). GEOLOGICAL RESOURCES CONSERVATION STRATEGIES

A1). SOIL CONSERVATION STRATEGIES

Table 1: Soil Conservation Strategies and Implementation Matrix

1. SOIL RESOURCES								
PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Years):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
Soil conservation	Construction of terraces on slopes above 15 degrees.	Cheptais, Chesikaki, Chepyuk, Kapkateny, Namwela, Mukuyuni, Kibingei, Elgon and Maeni wards	Ministry of Agriculture. Local communities	Reduced soil erosion	Increase in numbers of terraced farms in county			
	Encourage terracing on areas with slopes of between 5 and 15 degrees (not obligatory).							
	Development in areas of slopes of above 40 degrees should be restricted to only planting of trees, grass, tea, sugarcane or bananas.							
Soil testing	Mobile testing facilities	County-wide		Better soil information on county	Increased number of constructed soil testing centres and soil lab			
	Establishment of a county soil lab	Sirisia		Maximised crop production				
	Subsidizing the cost of Soil testing from Ksh.1500	Whole County						

SOIL DEVELOPMENT FLAGSHIP PROJECT: SOIL HEALTH CARD SCHEME

The project aims at improving agricultural productivity and crop quality through adopting the soil health card scheme.

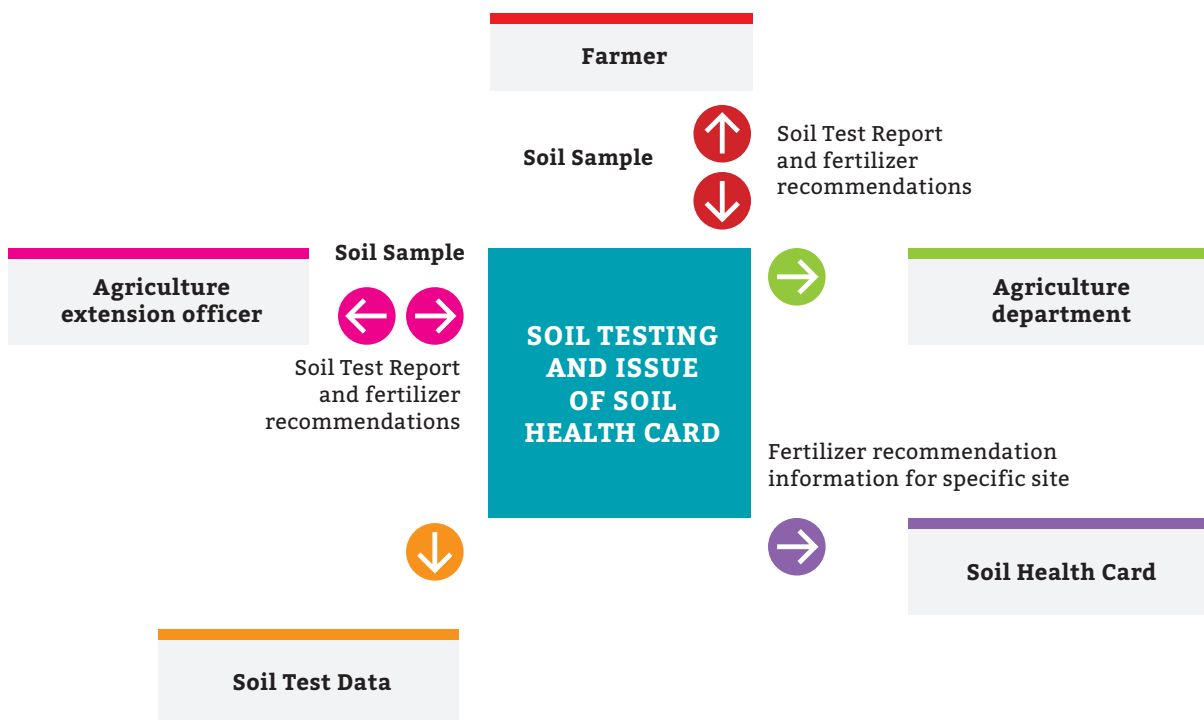
Strategies

- Establish agricultural soil testing centres at Kanduyi, Bumula, Kimilili, Maeni, Naitiri, Mbakalo, Kibuk and Chemweisus (Based on the farm management handbook)
- Develop mobile soil testing facilities per ward to target farmers across the County
- Provide Soil Health cards to all farmers in the County
- Establish a computerized system to keep details of soil test results at the centres

The scheme provides the farmers with information about soils and the kind of crops to be grown in various regions. This is based on free in-depth soil studies, conducted by scientists who study the samples for their water content, presence of elements such as potassium, nitrogen, phosphorous, copper, iron and zinc, as well as pH and salinity levels, clay content and water retention capacity. These details and advice on handling particular kinds of soil are then handed over to the individual farmers to serve as a guiding tool during sowing.

The proposed interaction of stakeholders of the soil health card scheme is as follows:

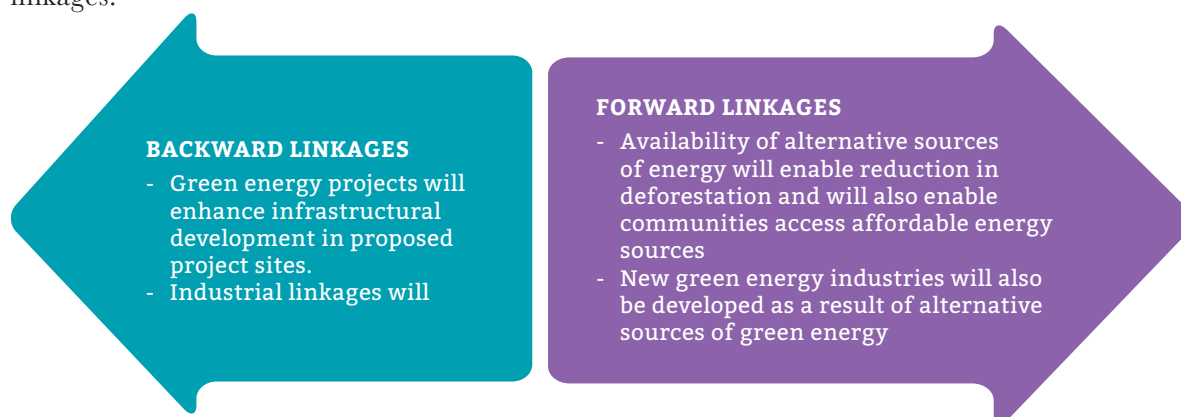
Figure 2: Proposed Soil Testing Scheme Model



Prerequisites for success

- Feasibility study on appropriate location of soil testing centres
- Strong political goodwill
- Capacity building
- Available source of funds

The Soil Health Card scheme is expected to generate the following forward and backward linkages:



A2). SAND AND CONSTRUCTION STONES STRATEGIES

Table 1: Sand and Construction Stones Strategies and Implementation Matrix

2. SAND AND CONSTRUCTION STONES								
PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Years):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
Sand harvesting	Sand harvesting may be allowed from any riverbed	All rivers in county	Ministry of Natural Resources. NEMA. WARMA Local communities	Controlled sand harvesting	Reduced cases of riverbank widening EIA Audit reports of sand harvesting riverbeds			
	Sand harvesting will not be allowed on any riverbanks.	All rivers in county						
	No sand harvesting shall take place within 100 meters of either side of any physical infrastructure including bridges, roads, railway lines, dykes, etc.	Whole county						
Stone blasting	1km buffer from settlements is recommended	Whole county	Ministry of Natural Resources. NEMA. Local communities	Controlled sand harvesting	No quarries within a kilometre of settlements			
	Promotion of sustainable sand harvesting and stone blasting as a viable economic activity	Stone blasting zones Tabani-Tongaren	County Government	Increased income from stone blasting	Number of established stone blasting sites			

B). WATER RESOURCES CONSERVATION STRATEGIES

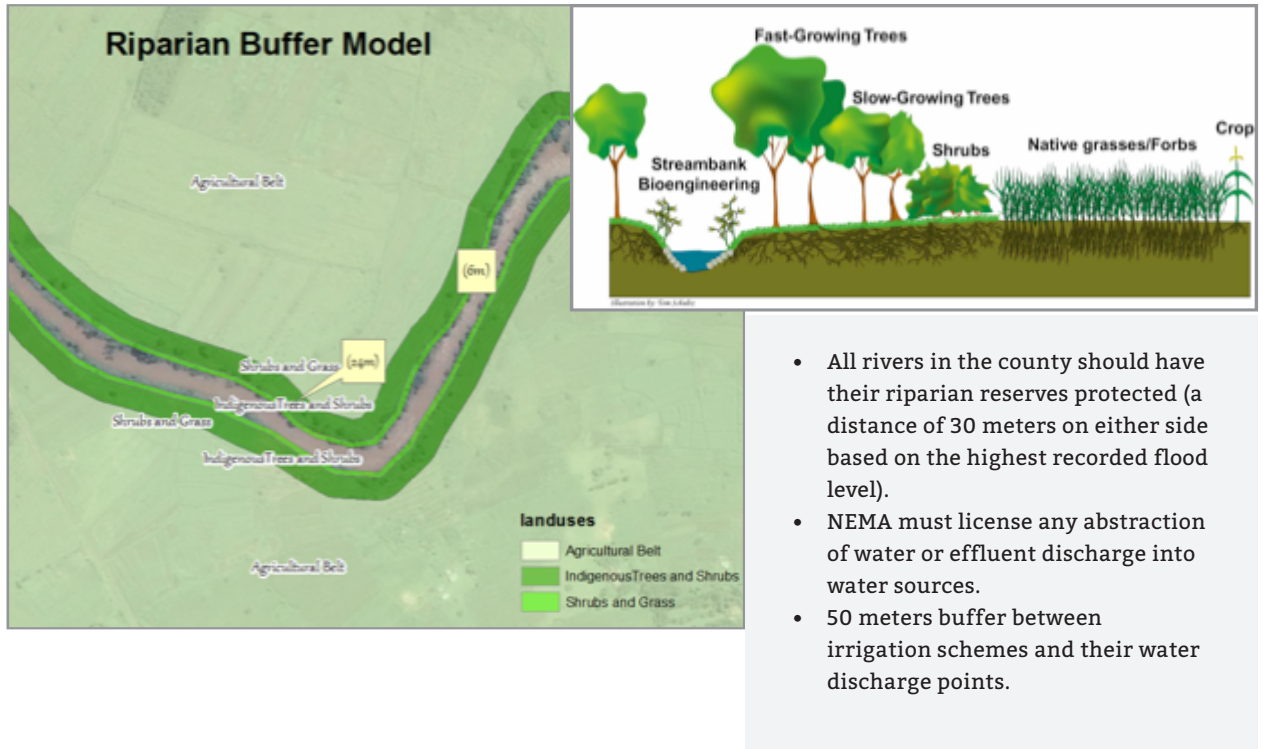
Table 1: Water Resources Conservation Strategies and Implementation Matrix

2. WATER RESOURCES								
PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Years):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
Riparian reserve protection	All rivers in the county should have their riparian reserves protected (a distance of 30 meters on either side based on the highest recorded flood level).	Along all Riparian reserves.	Ministry of Water Resources. WARMA NEMA. NGOs. WRUAs Local communities	Conserved riparian reserves.	Increased number of conserved riparian reserves Reported cases of encroachment crimes Reduced rate soil erosion into water bodies Increased % tree/ shrub cover on riparian reserves			
	Planting of appropriate tree and shrub species along riparian reserves to prevent siltation into water bodies							
	NEMA must license any abstraction of water or effluent discharge into water sources.							
	50 meters buffer between irrigation schemes and their water discharge points.							
	Discouraging farming and settlement along riverbanks.							

PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Years):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
	Encasing the sources of springs most at risk in concrete, forcing water to flow through a pipe rather than seeping from the ground, thus preventing contamination from groundwater.							
	Community maintenance of protected springs coupled with behavior modification among community members to stop contaminating water sources.							
Flood control	Construction of small multipurpose flood control dams.	Along all major rivers in county		Reduced flooding in flood prone areas	Increased number of small multipurpose flood control dams			
Improved water resources management	Preparation of long-term water resources plans.	Whole county		Better managed water resources	A functional water resources management plan Vibrant WRUAs in county Increased numbers of water harvesting activities per household			

PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Years):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
	Encourage water harvesting.	Whole county						
	Encouraging water recycling to minimize waste.	Whole county						
Wetlands Protection	Buffer of 30 meters from the high water mark should be maintained.	Whole county		Conserved wetlands and riparian reserves.	Increased number of buffered and maintained wetlands No. of encroachment cases reported			
	Sustainable uses of wetlands allowed by EMCA 2009 Regulations.	Whole county						
	Control of effluent discharge into R.Nzoia	Solid waste at Sango D.E.B Sewage outlet into R. Nzoia Heavy Chemical liquid waste flowing into R.Nzoia		Controlled effluence	Number of illegal effluent areas controlled			
Underground water protection	Underground water reserves require a buffer of 100 meters each.	Whole county		Improved underground water quality	Increased number of maintained underground water reserve buffers Improved underground water quality			

Map 6: Riparian Buffer Model



WATER RESOURCES DEVELOPMENT FLAGSHIP: MULTI-PURPOSE DAMS

Multi-purpose dams play a major role in water supply, irrigation, navigation, flood control, sediment control, water quality and energy. The County requires small multi-purpose dams located at strategic locations. The dams will be used for specific purposes such as:



The proposed sites for the dams are in R. Nzoia 32B, 42A and a site at Lunyu.

Through properly planned, designed, constructed and maintained dams to store water, it contributes towards fulfilling water supply requirements of different parts of the County. Irrigation will enable all year round planting season and floods will be prevented from causing damage to roads and farms.

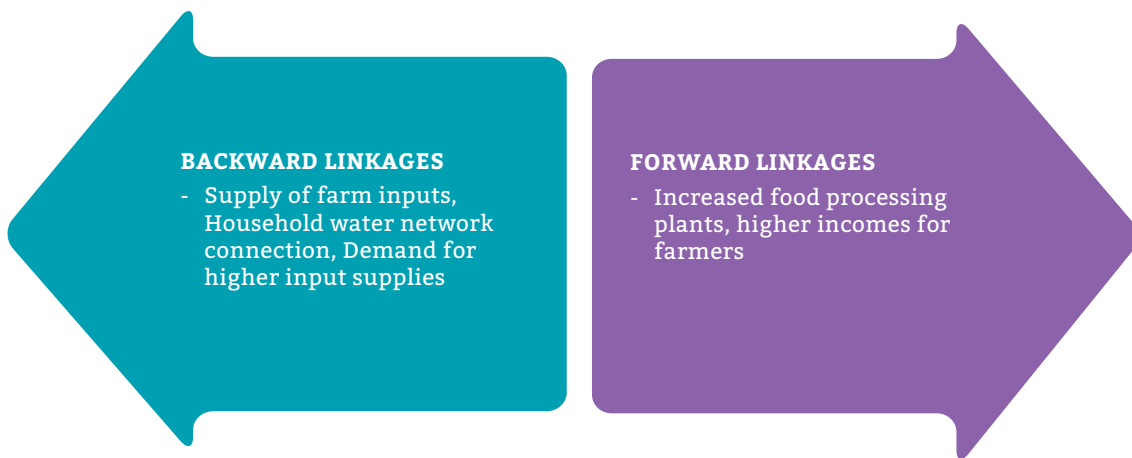
The objectives of this flagship project are:

- To provide adequate and reliable water for domestic, agricultural and industrial use
- To increase the supply of energy in the County
- To create employment opportunities in the rural areas

Prerequisites for success

- Management of the watersheds plan
- Feasibility studies on the viable dam sites in consideration to technical and economic aspects
- Preliminary studies including Environmental Impact Assessment
- Detailed designs on type of dams
- Public consultations

The forward and backward linkages in constructing the multi-purpose dams are as follows:



Impacts

- Adequate water supply in the County
- Promotion of industrial development in the County
- Development of SMEs and agricultural processing plan

C) FOREST CONSERVATION STRATEGIES

Table 1: Forest Conservation Strategies and Implementation Matrix

1. FOREST RESOURCES								
PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Years):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
Forest protection from deforestation and encroachment	Maintaining a forest buffer of at least 60 meters from the forest reserve edge	Mount Elgon forest	Ministry of natural resources Bungoma county. KFS. NEMA KWS. NGOs CBOs. Local communities.	Conservation of bio-diversity. Implementation of laws. Improved conservation efforts Community participation in conservation efforts	% reduction of deforestation trends. Increased % of forest and vegetated areas. Increased reports of fragile zones Increased number of participatory projects Increased number of afforestation programmes Established forestry database system			
	Awareness creation on forest conservation.	County-wide						
Improved forest management	Participatory forest conservation projects such as honey harvesting, ecotourism and sustainable charcoal burning/ logging	Mount Elgon forest						
	Effective trans-boundary management of Mount Elgon.							

	Increased forest department personnel.							
	Developing of updated database system and monitoring software for forest.							
Increasing forest cover in county	Encouraging agro-forestry practices to increase tree stocks.	County-wide						
Alternative wood fuel energy sources	Encouraging alternative energy sources such as briquettes to reduce demand for firewood and charcoal.	County-wide						
Promotion of afforestation	On artificial woodlots mkuyu mokoyonik, and simotuwoniik	From Kamokoywo river, Aburi village, Kamwenso, Khikhoi village, Sosio village, Chemoge to Masindet						

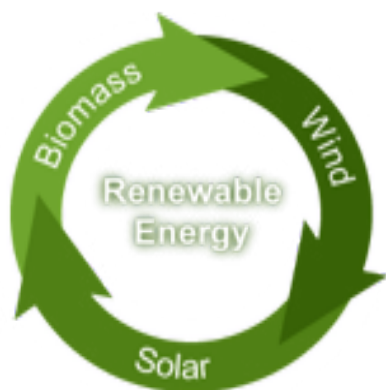
D). GREEN ENERGY RESOURCES STRATEGIES

Table 1: Green Energy Strategies and Implementation Matrix

5. GREEN ENERGY RESOURCES								
PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Years):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
Hydropower generation	Building of dams and construction of hydropower stations.	Webuye/ Nabuyole falls Lunyu Nzoia 32B and 42A	Ministry of energy resources Bungoma county. KPLC. KENGEN. NGOs. The local community.	Alternative sources of energy from solar and wind supply. Reduced reliance on electricity and wood fuel. Increased supply of hydropower energy Acquired skills on management of the solar and wind energy.	Increased number of Hydropower dams and stations. Increased installation rates of solar panels and farms. Increased number and investment of small wind farms			

PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Years):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
Solar energy tapping	Tapping of solar energy.	All parts of the county						
Wind energy harnessing	Tapping of wind energy for small-scale use.	Mt.Elgon top for small scale potential						
Biogas generation	Encouraging farmers to use biogas energy (from zero grazing and cowdung)	All parts of the county.						
	Generation of sugarcane bagasse by Nzoia Sugar Company	Nzoia sugar company						

GREEN ENERGY GENERATION FLAGSHIP



Access to energy is an essential day to day service and a fundamental condition for socio-economic development. The proposed generation of Green energy in Bungoma County will involve establishing solar, wind, hydro power and biogas projects that will involve and benefit local communities in accessing energy. It is therefore a facilitative flagship project. These projects will supplement electricity as well as ensure the environment's resources are sustainably utilized.

Location for green energy generation projects:



Wind power (Mt. Elgon region)



Solar power (Kanduyi, Bumula, Sirisia, Webuye East, Webuye West)

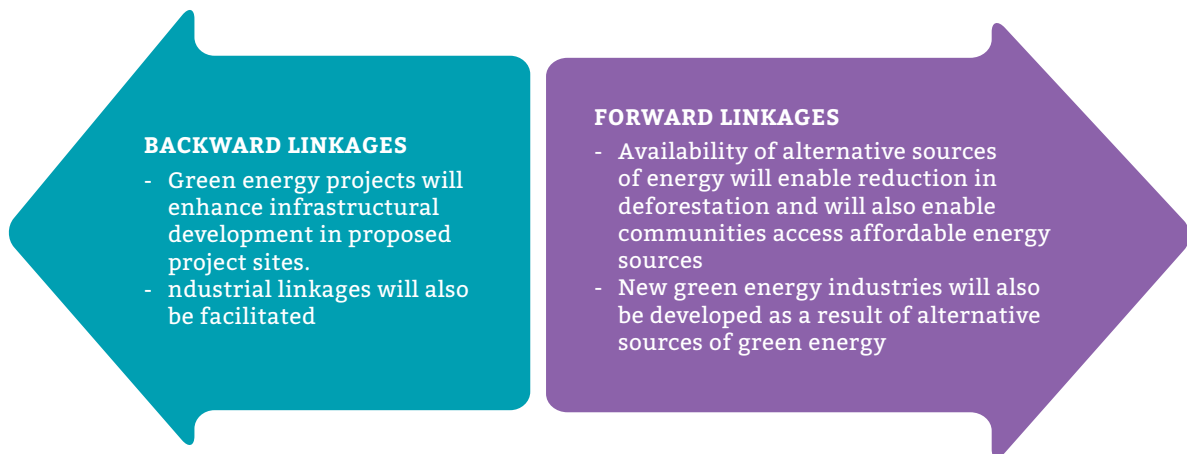


Biogas: Factory in Chebukwabi and Nzoia. Small scale projects around the County



Hydropower
Along R. Nzoia in Webuye and Kanduyi sub counties

The project will create the following forward and backward linkages:



Investing in green energy is projected to benefit the County in the following ways:

Political	Environmental	Social	Economic	Technological
+ Build power and action, + Win hearts and minds	+ Carbon emissions reduction; + Reduction in deforestation + Increase in environmental values and behaviours	+ Local ownership and decision making; + Renewable energy education and training	+ Presence of a community energy asset + Regional development and income diversification + Local jobs creation;	+ Green energy industry development; + Energy Self sufficiency

Prerequisites for Success:

- Initiation strategy- This will involve key stakeholders in the energy sector setting a vision and aims/ objectives for green energy generation
- Social feasibility studies to gauge the level of community support as well as scoping at a high level what is technically and financially suitable and desirable
- A full technical study to design the technical side of all green energy projects and establishment of an organizational structure
- A planning approval
- A Source of funds to enable projects to be constructed
- Civil works for project installation and connectivity to electricity grid

E). WILDLIFE AND SCENIC RESOURCES STRATEGIES

Table 1: Wildlife and Scenic Resources Strategies and Implementation Matrix

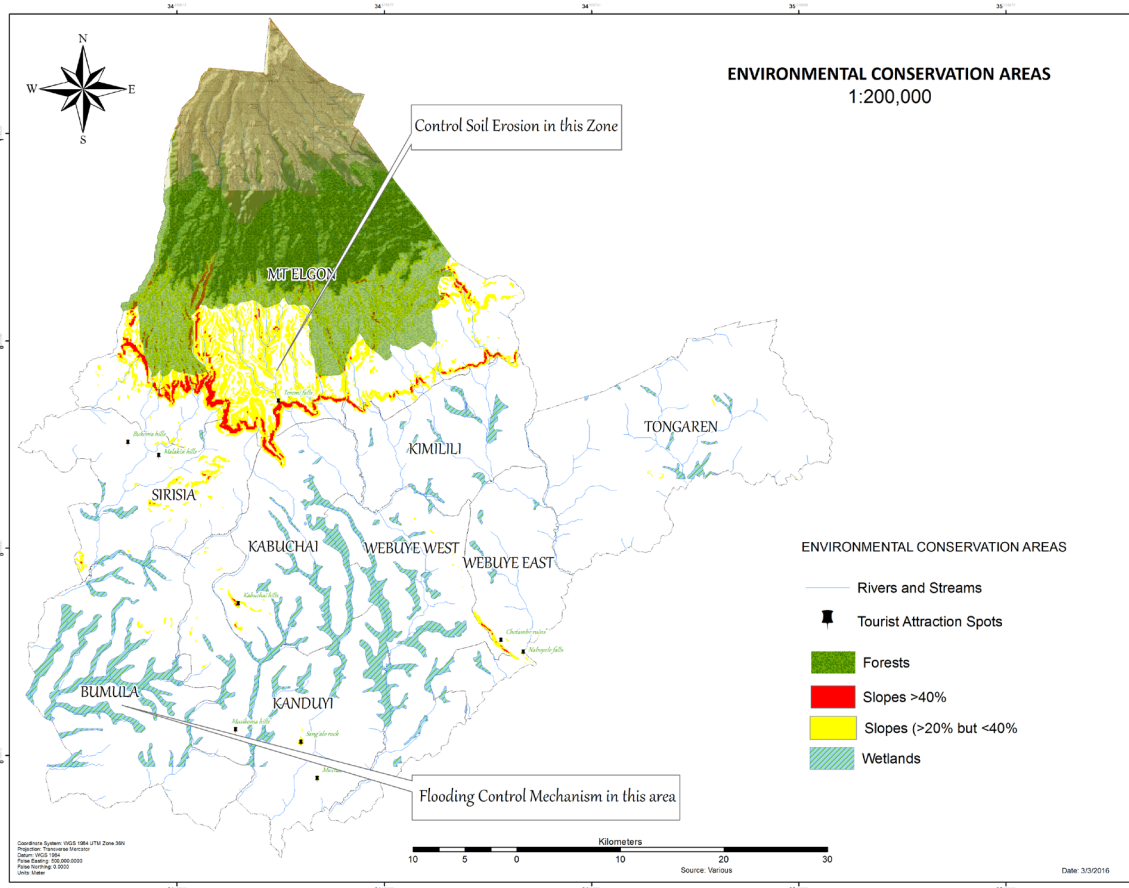
6. WILDLIFE AND SCENIC RESOURCES								
PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Years):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
Wildlife Resources	Gate to Mount Elgon National Park and Chepkitale National Reserve should be created to collect tourist fees	Mt. Elgon national reserve.	Ministry of tourism and culture. NGOs Local community KWS	Improved tourism industry in county	A gate constructed in park and reserve Increase in wildlife numbers in park Increased wildlife conservation activities			
	A buffer of 50m around the park							
	More involvement of local communities (eco-villages)							
Scenic Resources	Develop tourism action plans for focal points	Whole county	Ministry of tourism and culture. Ministry of Roads Local community	Better tourism promotion for county	Functional tourism action plan County tourism branding and promotion forum Influx in numbers of tourists. % of improved transportation linkages and conditions within tourist circuits			
	Promote the identified tourism circuits through branding and investment forums							
	Improve linkages between attractions							

F). LAND RESOURCES STRATEGIES

Table 1: Land Resources Strategies and Implementation Matrix

LAND RESOURCES								
PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Years):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
Mitigate population pressure for economical land holdings	Enhance minimum subdivision to 2 acres in bumula	Whole county	County Government National land Commission	Economical agricultural land holdings	Increase in number of existing land based on prescribed stands Number of agriculture based industries			
	Promote agriculture based industrialization							
	Promote intensive cultivation to sustainable incomes among small holder farmers							
Promote security of tenure	Issuance of title deeds especially in cases of succession	Whole county	County Government Relevant Ministries	Increased number of Community members with title deeds for both men and women	Increased number of title deeds allocated Increased rate of investments Reduced number of land conflict schemes			
	Build capacity among residents on how to acquire title deeds and resulting benefits.							

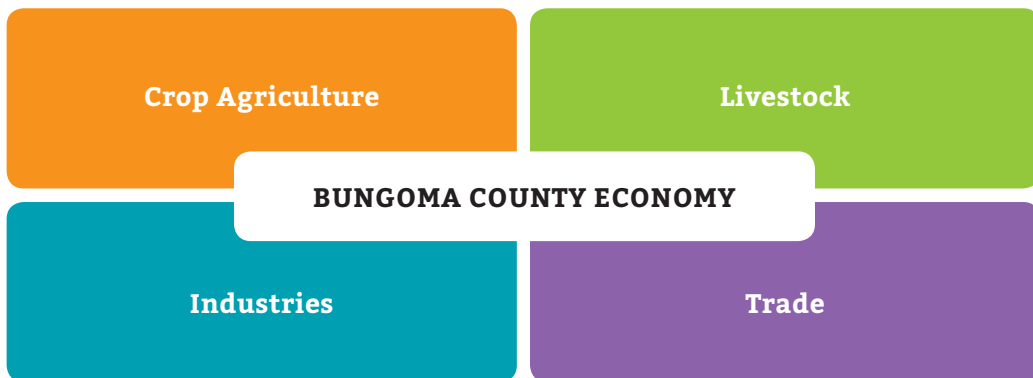
Resolving of land conflict matters	Establishment of community and village elder land dispute resolution committees	Whole county	County Government NGO's CBO's	Interactions with other communities to discuss issues and settle matters	Significant decrease in the number of attacks			
	Capacity building on legal land issues.				Increase in the number of anti-conflict groups Increased meetings for participation of locals in preventing, quelling and reprimanding those who facilitate and play a part in conflict			
Soil Conservation for sustainable exploitation	Community sensitization on the importance of protecting riparian reserves	All highlighted environmentally fragile sites (refer to structure plan)	County Government Community	Reduced soil erosion	Number of protected river banks			
	Soil Conservation and soil fertility monitoring				Number of soil clinics set up			
	Bench terracing on areas with slopes greater than 15%				Soil survey farms and soil testing clinics			
	Planting protective shrubs and trees to protect riparian reserves							
Control of Land Grabbing	Mapping and identification of all public land in Bungoma	Bungoma, Webuye, jua kali land Matulo airstrip Kimilili, Kapsokwony, Sirisia Tongaren and Malakisi Naitiri	County Government National Land Commission	Secure public lands Sufficient public space	Number of recovered public land			
	Repossession of grabbed public land							
	Degazettement of Chepyuk Phase 2 and 3	Chepyuk						



12.2.2 ECONOMIC DEVELOPMENT STRATEGY

An economic strategy has been proposed, integrating development of all economic sub-sectors within the county as depicted below:

Figure 3: Economic Resource Base



A). CROP AND LIVESTOCK (AGRICULTURE) RESOURCES STRATEGIES

Table 1: Agricultural (Crop and Livestock) Resources Development Strategies and Implementation Matrix

CROP AGRICULTURE								
PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (Years)		
				OUTCOMES	INDICATORS	1-3	4-7	8-10
Value Chain Maximization: Maize	Improve access to farm inputs by:	Whole Sub-County	County Government	Small holder lead development	Reduced % of crop failure incidents and counterfeit farm inputs			
Tomato	Regulate counterfeit agricultural inputs into the market.							
Paper from Sugar	Farm inputs subsidies/ farm input loans (Coffee, maize, fertilizer)	Sirisia			Affordable farm inputs			
Cotton								
Ground Nuts	Encourage private sector stockiest through subsidized rates				Increase in the number of small holder stockiest			
Avocado								
Banana	Sensitization on the importance of using improved Input varieties.				Number of improved seed varieties available to farmers			
Coffee								
Tea	Encouraging farm input research e.g. improved seed varieties							
Oil Palm								
Watermelon	Promote the formation of farmer SACCOs that source inputs from credited stockist and resell to farmers							
Sunflower								
Pyrethrum								
Tobacco	Establishment of a coffee nursery to supply coffee to farmers	Musese, Chwele and Namwela						
	Application of Soil Health Card scheme:	Whole County	County Government	Appropriate soil health schemes	Research findings on appropriate soil schemes			
	Research on soil samples for their water content, PH and salinity levels, clay content and water retention capacity		KALRO		Number of farmers with soil health card schemes			
	Establishment of soil survey farms per agro ecological zone (refer to map)				Number of education and demonstration forums for soil cards			
	Establishment of soil testing centres							
	Capacity building to farmers on suitability crops				Existing soil health card system in the county.			
	Issuance of the soil health cards to farmers							
	Developing an update system on the condition of soils in the county							

	Reducing the current price of soil testing from Ksh. 1500							
	<p>Use of technology in agriculture:</p> <p>Improve agriculture mechanization</p> <p>Invest in commercially subsidized farming machinery.</p> <p>Sensitization on the economic benefits of agricultural mechanization</p> <p>Equipping of ATDC stations</p> <p>Promote technology based farm management systems</p> <p>Reviving of collapsed agricultural projects eg dormant green houses in musukasa and fish pond in Bumula</p>	Whole County	County Government	Use in technology in agriculture	<p>Number of farms using agricultural machinery</p> <p>Number of County owned tractors and equipment</p> <p>Number of sensitization forums</p> <p>Number of farmers using technology based farm management tools</p>			
	<p>Promotion of agricultural irrigation projects:</p> <p>Preparation and implementation of an irrigation policy</p> <p>Up scaling of existing irrigation projects</p> <p>Reviving stalled projects</p> <p>Construction of dams for irrigation projects</p>	Whole County	County Government National Irrigation board	Irrigation lead agriculture	<p>Increased acreage under irrigation.</p> <p>Improved agricultural income.</p>			
	<p>Improving efficiency and effectiveness of extension service provision:</p> <p>Increasing number of extension officers to complement aging extension work force.</p> <p>Sensitizes and capacity build the farmers ability to take up extension services.</p> <p>Investment in extension officer mobility.</p>	Whole County	County Government. NGOs	Effective and Efficient Extension Services	<p>Number of extension officers to the ward level.</p> <p>Number of transportation equipment</p> <p>Number of public forums</p>			

PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (Years)		
				OUTCOMES	INDICATORS	1-3	4-7	8-10
	<p>Improve access to markets:</p> <p>Encourage and build the capacity of farmers to form and run marketing SACCOs</p> <p>Use local mass media to communicate and inform on existing marketing channels.</p> <p>Invest in, promote the use of constructed markets and market stalls in major trading centers</p> <p>Improvement through a participatory process the chwele open air market.</p> <p>Investment in storage facilities</p> <p>Revitalization of stalled value addition efforts: tomato factory</p>	Whole County	<p>County Government</p> <p>NGOs</p> <p>Private Sector</p>	Improved market incomes	<p>Number of registered SACCOs</p> <p>Number of training forums</p> <p>Number of constructed storage facilities.</p> <p>Number of revitalized projects</p>			
		Kimilili						
	<p>Improve access to agricultural credit:</p> <p>Sensitize to counter the fear of lending</p> <p>Lobby for farmer friendly MFIs and lending products</p> <p>Using SACCOs to promote savings for farmers</p>	Whole County	<p>County Government</p> <p>Banks and MFIs</p> <p>NGOs</p>	Improved agricultural Lending	<p>Number of farmers taking loans for agriculture activities</p> <p>Number of farmer friendly lending facilities developed</p>			
	<p>Promotion of climate Smart Agriculture: Research into potential climate smart agricultural initiatives.</p> <p>Sensitisation and off take of climate smart agricultural techniques</p>	Whole County	<p>County Government</p> <p>Tea and coffee research institutes</p> <p>NGOs and bilateral organizations</p>	Improved climate change resilience	<p>Number of climate smart innovations.</p> <p>Numbers of farmers engaged in climate smart agriculture</p>			

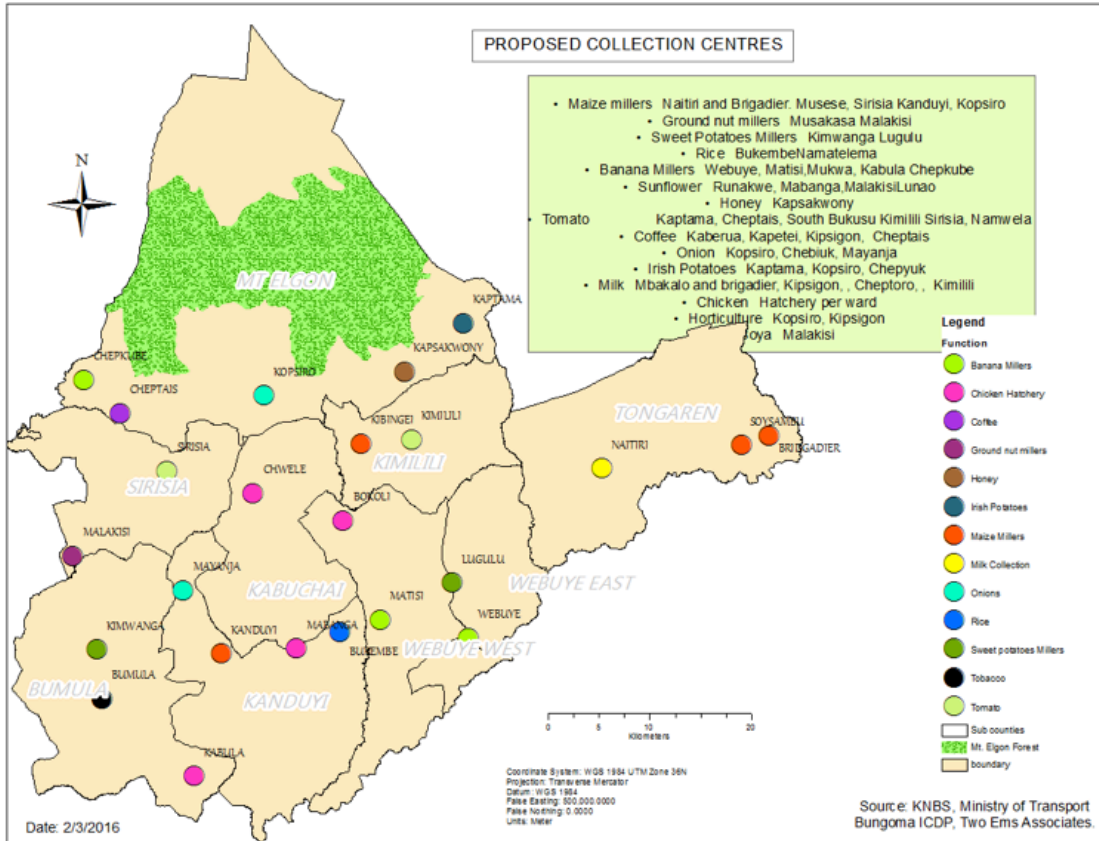
2. LIVESTOCK

PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (Years)		
				OUTCOMES	INDICATORS	1-3	4-7	8-10
<p>Livestock Value Chain Maximization:</p> <p>Chicken Milk Goats Sheep Rabbits Fishing</p>	<p>Improve livestock breeds :</p> <p>Capacity building on the importance of rearing improved livestock breeds and appropriate animal husbandry techniques.</p> <p>Promote the use of A.I. on improved livestock breeds to counter attitude change- establishment of A.I. centers</p> <p>Promote the use of A.I. on improved livestock breeds to counter attitude change</p> <p>Promotion of Zero grazing to counter the reducing grazing fields and improve dry matter feeding</p> <p>Establishment of a chicken hatchery per ward</p>	Whole County	County Government Private sector	Improve livestock breeds	<p>Number of farmers adopting improved livestock breeds</p> <p>Number of A.I. services introduced</p>			
	<p>Improve access to veterinary services :</p> <p>Reviving and promotion of cattle dips for pest control</p> <p>Promotion of private veterinary service providers and Community Animal health Workers (CAHW)</p>	Whole County	County Government Private sector	Accessible and affordable animal health	<p>Number of veterinary service providers</p> <p>Number of trained CAHW</p>			
	<p>Improve efficiency of extension services:</p> <p>Adequate staffing to promote extension services to the ward level</p> <p>Improve facilities especially transport facilities</p>	Whole County	County Government	Efficient and effective extension service provision	<p>Number of employed extension service providers at the ward level</p> <p>Increased transport facilities to all extension officers, motorcycles and bicycles.</p> <p>Number of barazas to sensitize on extension service provision.</p>			

PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (Years)		
				OUTCOMES	INDICATORS	1-3	4-7	8-10
	<p>Promote marketing infrastructure and markets:</p> <p>Encourage commercialization on livestock production</p> <p>Promote the cooperative movement in Bungoma County</p> <p>Sensitization to improve farmer attitudes towards commercial farming and credit management.</p> <p>Improving physical linkages between farmers and markets (roads, communication, storage)</p> <p>Investment in Livestock Market</p> <p>Construction of a slaughter house</p> <p>Establish collection centers per ward.</p>	<p>Whole County</p> <p>Tongaren-Mariti Market</p> <p>Tongaren Market</p>	<p>County Government</p> <p>Private sector</p>	<p>Improved livestock performance as an economic venture</p>	<p>Number of Increased commercial livestock ventures</p> <p>Increased number of livestock marketing Cooperative societies.</p> <p>Number of improved roads and storage facilities</p>			
		<p>Chepkube, Cheptais, Kopsiro, Kaptama, Kapsakwony, Malakisi, Sirisia, Chwele, Mayanja, Bokoli, Kimwanga, Kanduyi, Matisi, Lugulu, Naitiri, Soysambu, Kabula, Kimwalewa, chebukaka Kimalewa Chebukaka</p>						

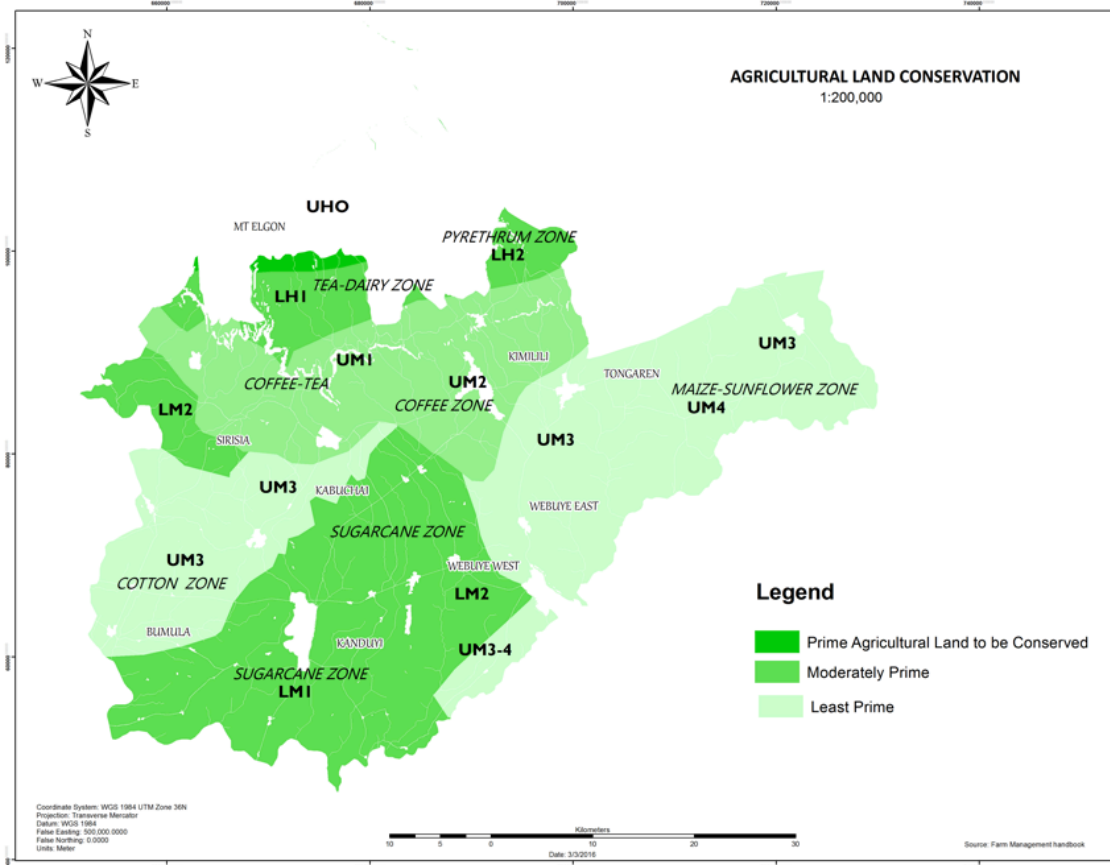
PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (Years)		
				OUTCOMES	INDICATORS	1-3	4-7	8-10
	Promotion of disease free zones: Development of a County Livestock Policy on meat hygiene Disease control and revenue collection.	Region Wide	County Government Ministry of Agriculture	Bungoma as a disease free zone	Established County Livestock policy Number of markets accessed due to disease free zone policies.			
	Reviving of all cattle dips	County Wide	County Government	Improved animal health	Number of cattle dips revived and operating			
	Promotion of fishing as an alternative source of income: Formulate a County fishing policy. Improve access to fishing gear for farmers and dam users.	County Wide Kapchenge, Sinoko dam	County Government	Fishing as a vibrant economic activity	A policy framework that regulates fishing activities Increased % of fishing activities in the County Number of fishing gear			
	Promotion of commercial bee keeping: Develop value addition on honey within the county as opposed to selling it raw Sensitization of bee keeping as a viable income stream	Kapsakwony	County Government	Improved Income from honey	An established honey processing centre Number of public forum in value addition of honey			
	Promotion of Rabbit keeping as a viable alternative : Capacity building on rabbit rearing techniques and benefits. Provision of rabbit breeds to farmers	Whole County	County Government and Development partners	Improved farmer income from rabbits	Number of forums on rabbit keeping Number of farmers taking up rabbit venture			
Promote farmer education and capacity	Promote capacity on: Crop varieties and crop intensification techniques. Soil fertility and soil preservation Value addition Marketing Crop pests and disease prevention and treatment Tailoring education programmes at technical and village polytechnics in agricultural production	Whole County	County Government	Farmers with improved farming capacity	Number of improved crop varieties adopted Number of soil labs established. Number of value addition streams adopted			

Map 17: Proposed collection centers



Prepared by: Two Ems, 2015

Map 18: Agricultural Land Conservation



Product mix	Collection centre	Sub County
Maize millers	Mbakalo, Soysambu, Tongaren, Naitiri, Ndalú and Brigadier.	Tongaren
	Musese, Matisi, milo market, Sirisia Kanduyi	Webuye Sirisia Kanduyi
	Kibingai, Maeni Kopsiro, Kabuchai	Kimilili Mt. Elgon
Ground nut millers	Musakasa Malakisi	Bumula Webuye
Sweet Potatoes Millers	Kimwanga Lugulu	Bumula
Rice (along rivers Sio and Namatelema)	Bukembe Namatelema	Kanduyi Bumula Sirisia
Banana Millers	Webuye, Matisi,	Webuye
	Mukwa, Kabula Chepkube(Light industry)	Bumula Mt. Elgon
Sunflower	Runakwe, Mabanga,	Bumula
	Malakisi, luondo youth group Lunao	Sirisia Tongaren
Honey Tomato	Kapsakwony	Mt. Elgon
	Kaptama, Cheptais, Misikhu Kcc Area in Muslim	Mt. Elgon Kanduyi
Honey	South Bukusu	Bumula
Tomato Coffee	Kimilili	Kimilili
	Sirisia, Namwela	Sirisia
	Kaberua, Kapetei, Kipsigon, Cheptais(has a de-husking factory), kaptama kopsiro Sirandufu in Bokoli	Mt. Elgon Webuye East
	Musese (near Chewele)	Kabuchai

Coffee Onion Irish Potatoes	Musese (value addition)	Bumula
	Kopsiro, Chebiuk Mayanja, Misikhu	Mt. Elgon
	Kaptama, Kopsiro, Chepyuk	Mt. Elgon
Tea	Kopsiro	Mt. Elgon
Milk	Mbakalo, Tongaren, Naitiri, kimalewa, chebukaka, Ndalul and brigadier Kaptama	Tongaren Mt. Elgon
Irish Potatoes	Kipsigon, Kaptama, Cheptais, Cheptoro, Kapsakwony, Cheskaki	Mt. Elgon
Milk Chicken Animal Feed	Kimilili	Kimilili
	Hatchery per ward Kimaeti, Lunakwe	Bumula
		Bumula
Horticulture	Kopsiro(existing market structure) Kipsigon	
Soya	Malakisi	
Bottled Water	Kapsakony, Bumula	Mt. Elgon
Cassava	Kimaeti	Bumula
Molasses, Wines and Spirits	Bukembe East	Kanduyi
Tobacco	North Teso	Bumula

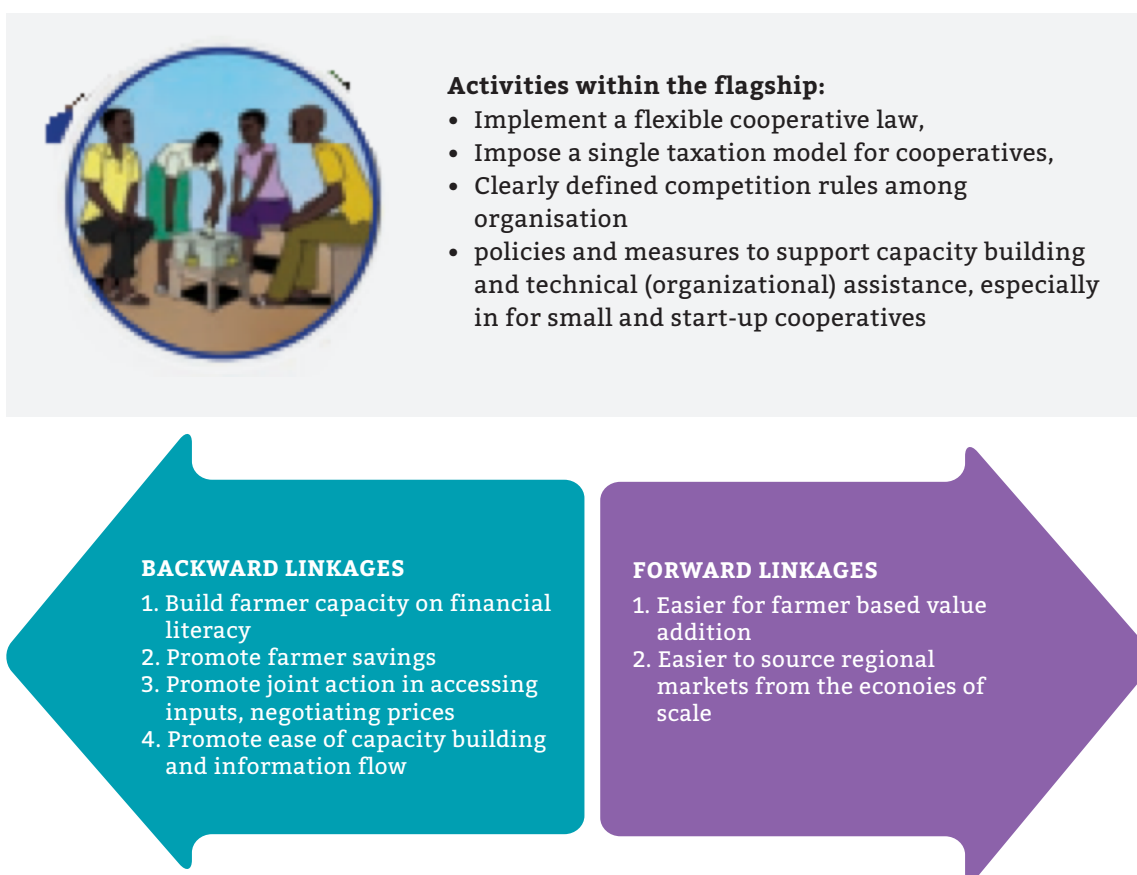
AGRICULTURE FLAGSHIP PROJECTS: FARMER CAPACITY BUILDING AND COOPERATIVE PROMOTION AND COORDINATION

Agriculture is the backbone of Bungoma's Economy. Most agricultural value chains are largely influenced by poor marketing of produce and limited capacity of farmers to intensify agricultural production.

'Cooperatives in general, should not be viewed as societies helping their members only, but should be considered as tools for social change and institutions for community development.'

This flagship aims to:

1. Build the capacity of farmers in agricultural techniques that can intensify production
2. Promote joint action in marketing of agricultural produce through farmer owned cooperative movement.



Prerequisites for Success:

1. There must be technical support on implementation of cooperative societies development policies;
2. Facilitate easy registration and deregistration of Cooperative societies
3. An institutional framework that facilitates and enhance linkages among cooperative stakeholders, both locally and internationally;
4. There should exist a conducive environment for the cooperative movement networking in the areas of production, processing, marketing, financing and investment.

B). INDUSTRY AND TRADE DEVELOPMENT STRATEGIES

Table 1: Industry and Trade Development Strategies and Implementation Matrix

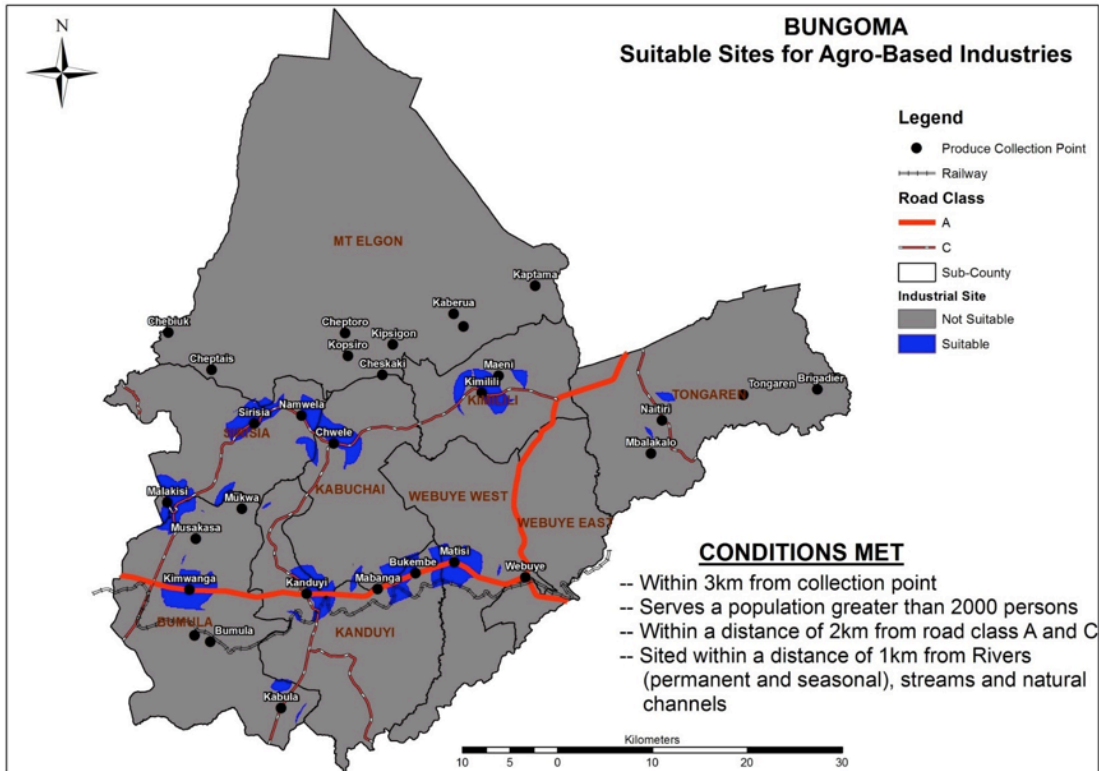
INDUSTRY								
PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (Years)		
				OUTCOMES	INDICATORS	1-3	4-7	8-10
Promotion of agro industrial growth	<p>Creation of Industrial Zones: Zoning and planning of industrial parks.</p> <p>Promotion of innovative PPPs for industrial development</p> <p>Sourcing of industrial markets both locally and regionally.</p> <p>Development of urban and rural infrastructure (roads, water, electricity) to promote production for the industries.</p> <p>Preparation and Implementation of Local Physical development plans to control urban growth in the event of industrial growth</p> <p>Tailor and develop education institutions and programmes that supplement the requirements of the industries</p> <p>Create and promote an appropriate and enabling business environment for investors into the business park and industrial zones</p>	Proposed industrial zones (Kanduyi, Malakisi, Kimilili, Sirisia, Chwele, Namwela, Tongaren, Kimwanga, Matisi, Bumula)	County Governments Private Sector	Agro Industrial lead growth and Development	<p>Number of Prepared Local Physical Development plans.</p> <p>Number of PPPS and investors in the industrial zones.</p> <p>Number of Industrial roads developed.</p> <p>Number of pro-industrial courses offered in Polytechnics</p>			

	<p>Reviving of collapsed industries in Bungoma County:</p> <p>County government to campaign for use of sugarcane barges as a principle raw material for Pan Paper Mill.</p> <p>Research into ways of reviving cotton production in Malakhisi</p> <p>Reviving Kitungi and Lugusi coffee factories, oil palm industry in Lwakhakha</p> <p>Build Sirandufu coffee Factory on available 8 acre land, coffe factory in Mayanja</p> <p>Revive collapsed banana factor-Mukwa</p> <p>Peanut factory - musukasa</p>	<p>Malakisi, Lwakhakha</p> <p>Webuye</p>	<p>County Government</p>	<p>Industrial based growth in Bungoma County</p>	<p>Number of revived industries</p> <p>Number of research centres</p>			
	<p>Formation and investment in regional markets:</p> <p>Integration agreements for market creation</p>	<p>Regionally</p>	<p>County Government</p>	<p>Increased regional markets</p>	<p>Number of regional trade agreements.</p> <p>Number of regional markets that exist.</p>			
	<p>Promotion and development of cottage industry:</p> <p>Establishment of a jua kali zone in each subcounty</p>	<p>Whole County</p>	<p>County Government</p>	<p>Vibrant Cottage Industries</p>	<p>Number of Jua Kali zones per sub county</p>			
TRADE								
<p>Improvement of Business Environment to encourage Agro Industries</p>	<p>Preparation and implementation of a Pro MSE and industry policy in Bungoma:</p> <p>Preparation of a trade policy</p> <p>Improvement of trade licensing and revenue collection streams</p>	<p>County Wide</p>	<p>County Government MSEA</p>	<p>Pro –MSEs growth policies</p>	<p>An existing trade policy</p> <p>Number of trade licenses offered and revenue collection streams</p>			

PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (Years)		
				OUTCOMES	INDICATORS	1-3	4-7	8-10
	<p>Harmonization of single business license fees by: Establishment of one stop shop licensing Involving traders in decision making</p> <p>Improve on issuance of licenses to avoid unscrupulous traders</p> <p>Regulation of fees to make them business friendly.</p> <p>County government intervention taming rogue revenue collectors</p>	Whole County	County Government	Harmonized Single business permit	<p>Number of stakeholder seminars on single business permits</p> <p>Number of authorized revenue collectors</p>			
	<p>Construction and reviving stalled of market stalls:</p> <p>Completing stalled market stalls</p> <p>Introduction of new market stalls where they are not existing</p> <p>Designate waste disposal space in all markets</p> <p>Redesign the drainage system in major markets</p> <p>Construction of public toilets in all markets</p> <p>Constructions of storage facilities for farmers produce</p> <p>Construction of Jua kali sheds</p>	<p>Market centres:</p> <p>Sirisia</p> <p>Bukembe</p> <p>Buyofu,</p> <p>Myanga and Mateka</p> <p>Cheptais</p> <p>All markets</p>	County Government	Operational market stalls	<p>Number of completed projects</p> <p>Number of waste disposal and drainage swamps per market stalls</p> <p>Number of new market stalls</p>			

PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (Years)		
				OUTCOMES	INDICATORS	1-3	4-7	8-10
Improve access to business financing	Sensitization to counter fear of borrowing Tailoring lending to small business best captured by MFIs	County Wide	County Government MFIs NGOs	Improved business financing	Number of public forums and sensitization Number of lending facilities enacted			
Improved access to infrastructure for businesses	Connection of trading centres to water and electricity. Regulation of frequent electric blackouts Improvement of roads	All major trading centres	County Government NZOWASCO KPLC	Improved infrastructure connection for business growth	Number of trading centres connected to water and electricity Number and frequency of power dependency Number of roads linking centre connected.			
Skills improvement for better managed MSEs	Skills needs assessment Skills improvement plans and policy Training programme Equip vocational training centers with business training facilities	County wide	County Government MSEA	Improved business efficiency through a skilled business community	Skills assessment report Skills improvement plan Number of trained business personnel.			

Map 154: Suitable sites for Agro-Based Industries



Prerequisites for the model to work:

1. To attract private sector, to industrial zones, there must exist external markets
2. Development of rural infrastructure (roads, water, electricity) to promote production for the industries.
3. Tailor and develop education institutions and programmes that supplement the requirements of the industries
4. Appropriate research into industrial technology and product mix
5. An appropriate and enabling business environment for investors into the Business Park and industrial zones.

Prepared by: Two Ems Associates, 2015

INDUSTRIAL SECTOR FLAGSHIPS:

A). TRANSFORMATION AND REVIVAL OF PAPER MILLS (WEBUYE)

Viability of Use of Sugarcane for Paper As Opposed To Other Uses:

As the push for increased forest cover grows, the desire for substitution of reliance on tree stocks for production has now grown. Paper can be made easily from bagasse (the fibrous residue after sugarcane stalks are crushed to extract their juice /from sugarcane production), lowering the amount of plantation and old tree stock that needs to be logged for paper production. The type of paper that can be produced includes generic writing paper, tissues and packaging. It can also be used to manufacture cardboard.

Reason for Appropriateness in Bungoma County:

- Large sugarcane stocks within county and in surrounding counties.
- Raw sugarcane is 5 times cheaper than wood thus the process would be more profitable
- Existence of the defunct Pan Paper mills (employed 5,000 people directly and another 30,000 people indirectly).
- Opportunity for major employment generation and revival of the previously industrial Webuye Town and its environs.
- Ability to brand the paper from Pan Paper as ‘Green Paper’.



Cost of Transforming a Wood Fiber Paper Mill to Produce Sugar Cane Paper



From thorough research, it was concluded that there is no significant cost of transitioning a wood fiber paper mill to produce sugarcane paper. Thus, in regards to the manufacturing of sugar cane paper, the company does not need to think twice about transforming their factory since they would not need to purchase new equipment and sugar cane paper is a more sustainable option (University of British Columbia, 2013).

1. Compared to wood pulp, sugarcane pulp is produced at a cheaper cost. Wood is normally of higher cost than sugarcane bagasse. It is also bio-friendly by using what is previously considered as waste material unlike wood fiber.
2. The sugarcane pulp is refined and treated at the mill in the same way that wood pulp is used. Other than the actual extracting phase, the bagasse will not need to be prepared in other ways before being treated chemically. Furthermore, due to the nature of the extraction phase and the formation of sugarcane bagasse, the sugarcane bagasse requires less bleaching chemical, and is able to achieve a similar bright and white quality that we see in normal wood fiber paper.
3. In the manufacturing process, the same machine is used for making both wood fiber and sugar cane paper products.
4. While, sugarcane paper once used cannot be recycled unlike wood paper, this disadvantage is offset by the cost required to recycle wood fiber paper (de-inking costs and bleaching costs).

NZOIA SUGAR COMPANY

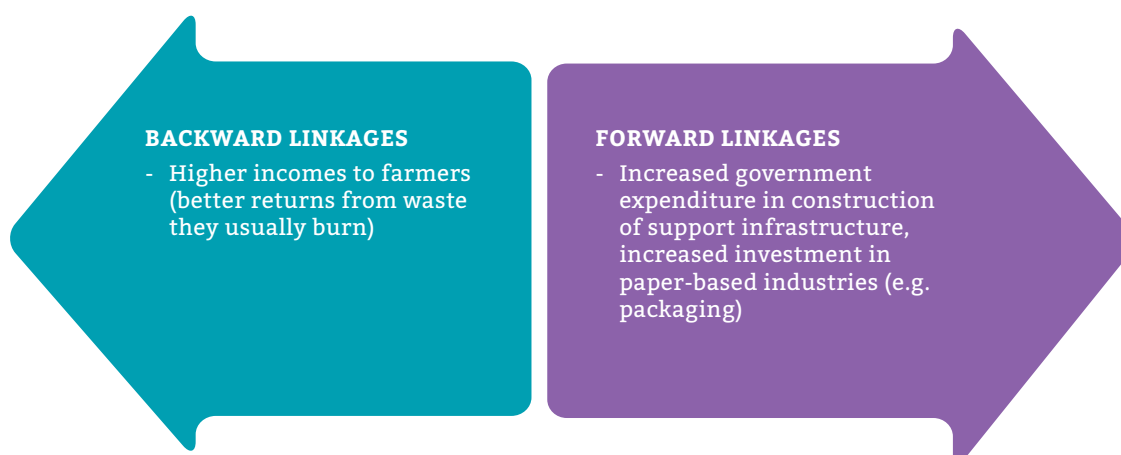
**WEST SUGAR COMPANY
(PRIVATE)**



**POSSIBLE RAW MATERIAL
SOURCES**

Nzoia Sugar Company, for instance, mills about 302,000T of cane (in 2014) annually and produces above 200,000T of bagasse. While use of bagasse for sugar paper production would compete with the use of the same resources for co-generation, it is very costly to upgrade an inefficient bagasse co-generation plant (1.5 Million USD for every additional MW).

A forward linkage is created when the growth of a particular industry encourages investment/ leads to the growth in subsequent stages of production/ of industries that use its output as input. A backward linkage is created when a when the growth of an industry leads to the growth of the industries that supply it. The forward and backward linkages that the transformation and revival of Pan Paper will create is as illustrated below:



Prerequisites for Success:

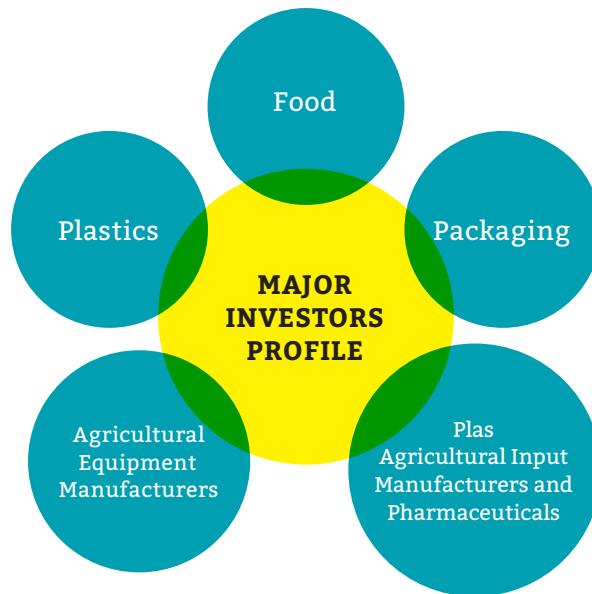
- Political goodwill and consensus
- Detailed feasibility study on actual costs and viability of proposed flagship
- Aggressive marketing and shopping for an appropriate investor
- Supply of alternative fuels to sugar mills so as to save the entire bagasse for paper production.

B). AGRO-INDUSTRIAL PARK WITH A SPECIAL ECONOMIC SUB-ZONE



This flagship will be a ‘sector-specific’ industrial park focused on the development of the agro-industrial sector or industry, with a specific part of the park being designated as a Special Economic Zone. This Agro-Industrial SEZ section will be propelled through the facilitation of general or specific industrial infrastructure, incentives, technical and business services primarily for the export market.

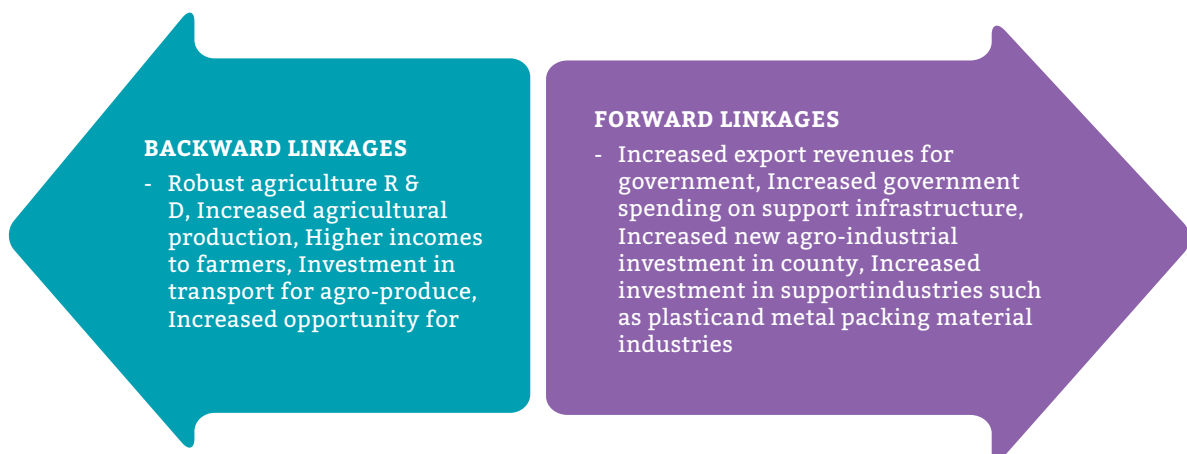
The activities that will be eligible for existence in the Agro-Industrial Park will be those that involve processing and or manufacturing of agricultural products and agricultural services. The proposed agro-industrial sector profile will include:



In addition to the above major investors, the agro-industrial park is proposed to have the following components:

- One-stop government services shop
- Agri-business incubation centers- Business incubation is a venture that seeks to grow upcoming business by providing mentorship, capital and technology where possible.
- Agriculture training and research center
- Demonstration farm- to teach farmers practices for improving value of their output for a wider market reach.

The forward and backward linkages that this agro-industrial SEZ will create is as illustrated below:



As a result, this agro-industrial park would become a hub for the county agricultural sector through supply and demand linkages that would ensure a trickle-down to the grassroots farmers as illustrated:



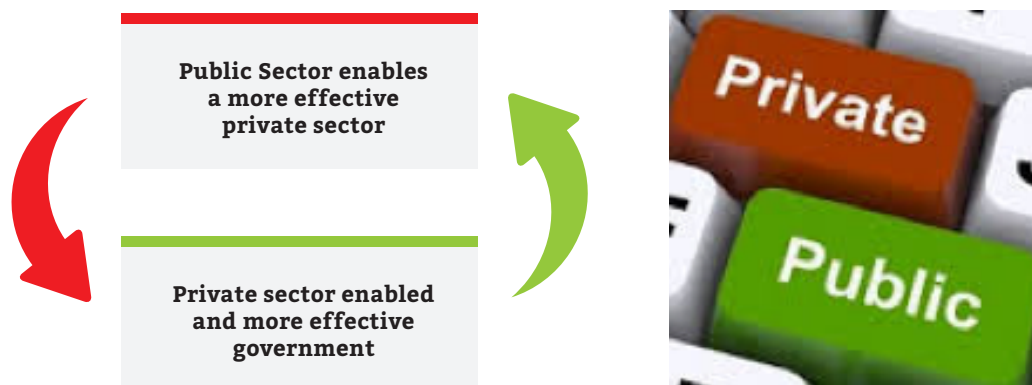
Prerequisites for Success:

- Strong SEZ policy (at both national and county government level) providing attractive tax incentives.
- Feasibility study on an appropriate location and a site Agro-Industrial SEZ Master Plan.
- Development of a strong transport system for export of produce.
- Anchoring on a spatial plan

C). PRIVATE SECTOR FACILITATION FLAGSHIP

This flagship is based on the understanding that growth, poverty reduction, service delivery and job creation is solely dependent on a robust private sector. Proposal herein rely on how to engage the private sector in the County growth. For the private to grow, it must be facilitated by the public sector. To this end, it must be anchored on key pillars including:

Figure 4: Symbiotic Relationship between the Public and Private sectors



To achieve these key pillars the following key projects must be implemented:



D). TOURISM DEVELOPMENT STRATEGIES

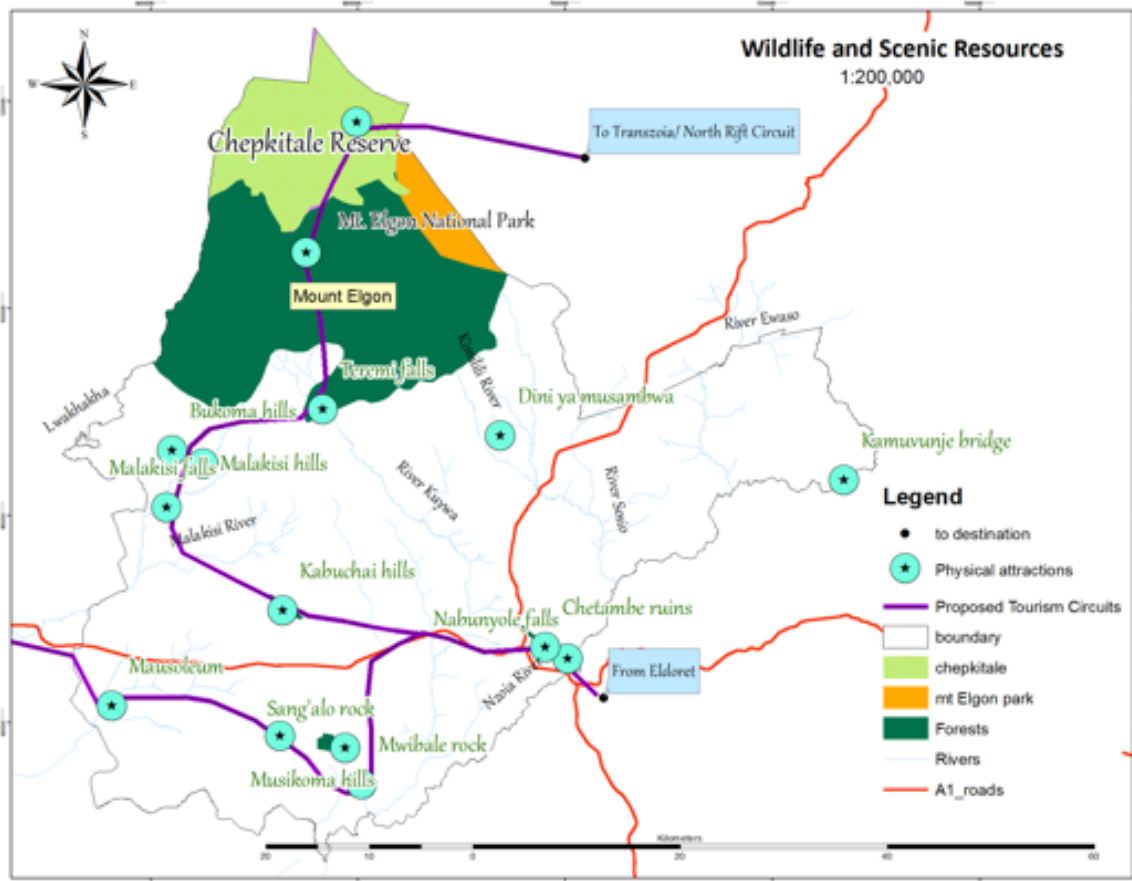
Table 1: Tourism Development Strategies and Implementation Matrix

TOURISM DEVELOPMENT								
PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (Years)		
				OUTCOME	INDICATORS	1-3	4-7	8-10
Opening and remarketing of the existing lake basin tourism circuit	Marketing of the circuit regionally and internationally Establishment and efficient management of the circuit management body Preparation of tourism directory and documentary	Region wide	County Government	Regional corporation for sustainable tourism exploitation	Number of marketing campaigns conducted Establishment of circuit management body Tourism directory and documentary			
Promote private sector involvement and investment in Tourism	Addressing the perception challenge through promotion and sensitization. Innovative incentives to the private sector to encourage their investment.	Region wide	County Government Tourist Stakeholders	Actively engaged private sector in Tourism in Bungoma	Number of new private sector lead tourist investments. Number of tourist subsidies			
Investment in tourist attractions	Promote establishment of a Gate at Mt. Elgon Subsidies for resort and activities around Nabuyole falls Investment in sports tourism	Mt. Elgon - Kaboiywo Nabuyole falls	KWS County Government	Commercially viable tourist attractions	A gate at Chepkital Number of incentives enacted			

Infrastructure investment and improvement	Construction of tourism missing links within the county.	County wide	County Government Development Partners	Roads being an enabler of tourism promotion	Increased investment along investment sites. Number of roads improved			
Environmental and cultural conservation	<p>Conservation of water towers.</p> <p>Preservation and promotion of culture</p> <p>Investment in cultural villages</p> <p>Promotion of Nasala falls as a tourist attraction site</p> <p>Promotion of Daraja Mungu (a unique area between Kenya and Uganda) as a tourist attraction site</p> <p>Promotion of special soil painting as a tourist attraction</p> <p>Promotion of Sudi mausoleum</p> <p>Promotion of Chebuk (Henry Keere) to be a tourist attraction site</p> <p>Sikele Siamulia (A rock with all kinds of fauna) is a potential tourist site</p> <p>Mwibale Mwanja water fall is a potential tourist site</p> <p>Promotion of Namasanda dam sanctuary to be a Tourist site</p> <p>Encourage investors in tourism</p> <p>Promotion of Daraja ya Mungu to be a tourist attraction site</p> <p>Promotion of Elijah Wanameme to be a tourist attraction site and Build hotels in the area</p>	<p>Sangalo</p> <p>Webuye Kimilili</p> <p>Mashanga caves</p> <p>Chesikaki ward</p> <p>Chesurup village, Cheptais ward</p> <p>Kapkwes and Mesa Bumula Kabuchai</p> <p>Sangalo west</p> <p>Musikoma Kibingei</p> <p>Chebkwabi</p>	Government of Kenya National Museums of Kenya Kenya Forest service	Preservation and promotion of environment and culture	<p>Number of conservation efforts and campaigns.</p> <p>Number of cultural villages and heritage sites</p>			

Tourism Niche development	Branding Bungoma as a cultural and wildlife county Aggressively marketing the county based on the identified niche.	National	County Government Stakeholders	Development of a sustainable tourism niche	Number of marketing campaigns			
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Map 22: Proposed Tourism Circuit



Map 17: Proposed Tourism Circuit

TOURISM DEVELOPMENT FLAGSHIP: CULTURAL TOURISM DEVELOPMENT



Cultural and heritage sites preservation has benefits that would potentially trickle down to all levels of society. To brand Bungoma County as a cultural hub, vigorous marketing and hallmark events will be vital. Considering the religious, historical and cultural sites (Dini ya Msambwa, Bukusu circumcision ceremony, Chetambe ruins among others) and the scenic land forms (Mwibale rocks, Nabuyole waterfalls, Sang’alo hills etc.) cultural branding would be a potent force for the overall economic, social and cultural development as well biodiversity conservation in the County.

The County government can reclaim the open space of Chetambe ruins and establish a museum to bring out the character and history of the ruins and build the cultural perception of the local community. It would also be beneficial to rehabilitate the Sang’alo cultural center. Establishing and building social halls in various parts of the county and assigning them mixed cultural use would help in building a cultural image of the county.

A programme of annual activities and events could also be introduced to include:

- Bungoma arts festivals and events held at Sang’alo cultural center
- Dini ya Msambwa cultural pilgrimage
- Bukusu circumcision ceremony

The Bukusu circumcision ceremony will adapt methods such as Training and Working with circumcisers on use of current scientific medical tools and Awareness creation on observing hygiene, risk prevention and management. This will facilitate embracing modernization while enhancing cultural preservation.

The events and activities will:

- Create and launch a new cross-border and concise tourist offer based on natural and cultural heritage distinct feature
- Establish long-term cross county inter-institution and industrial relations
- Give Bungoma county the opportunity to custom make a cross-county tourist offer sales system
- Shape a visitor’s experience of the County

BACKWARD LINKAGES

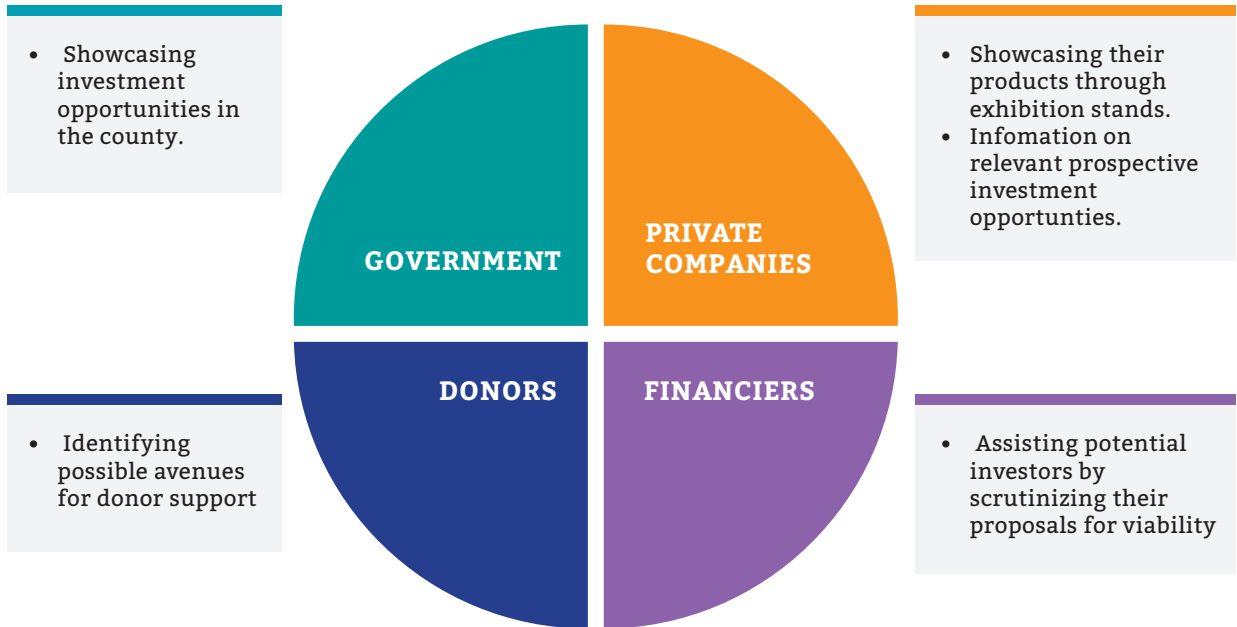
- Creation of a platform for cultural entrepreneurs such as artists, craftsman, writers, actors and musicians
- Efforts will be made by local community to strive to preserve, restore reconstruct cultural heritage sites

FORWARD LINKAGES

- Establishment of a longterm cross county inter-institution and industrial relations
- The tourism and hospitality industry will be expected to grow due to rising number of visitors

E) OVERALL ECONOMIC SECTOR FLAGSHIP: ANNUAL INVESTMENT SUMMIT ((Borrowed from Gujarati, India)

The target of the investment summit is to bring together Bungoma County government officials, national government officials, investors and entrepreneurs together. The aim of the summit is to showcase the investment opportunities in the County, and highlight the county’s program of economic incentives and its comparative competitive advantages. The summit is expected to promote various connections as illustrated below:



The county niches to be promoted as the main focus sectors are proposed to include:

Investment Summit

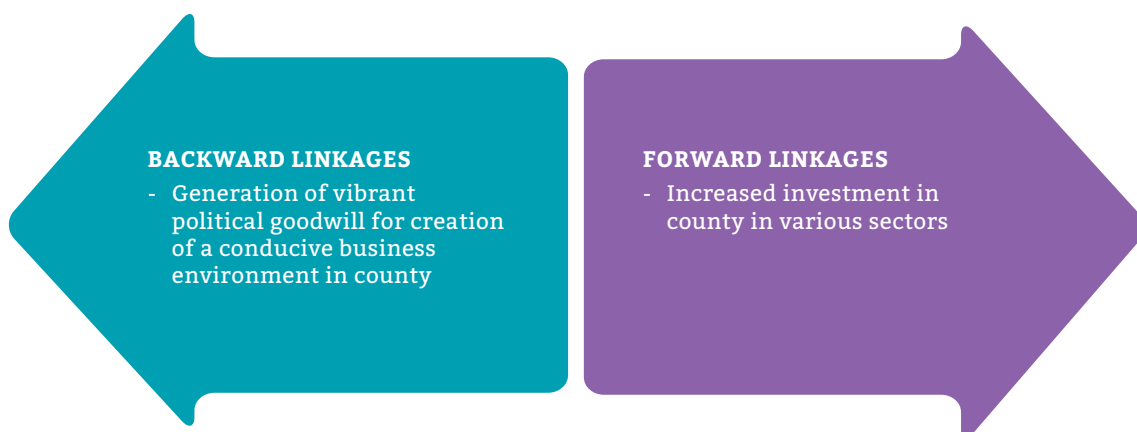
Plate 1: Elements of Investment Summit





It is proposed that the investment summit be planned to coincide with the annual Bukusu circumcision ceremony period so as to attract an even higher number of visitors and media attention. The investment summit should also be supported by an interactive online portal, with a one-stop mechanism for investors that want to invest in the County.

A forward linkage is created when the growth of a particular industry encourages investment/ leads to the growth in subsequent stages of production/ of industries that use its output as input. A backward linkage is created when the growth of an industry leads to the growth of the industries that supply it. This flagship project is expected to create the following forward and backward linkages:



Prerequisites for Success:

- Strong political goodwill
- Robust county economic and business environment policy and laws
- Vibrant branding and marketing campaigns by county
- Anchoring summit on a plan

12.2.3 INTEGRATED TRANSPORTATION STRATEGY

The transportation strategy has been proposed, enhancing development of all transport sub-sectors within the county as depicted below:



Table 1: Transportation Development Strategies and Implementation Matrix

TRANSPORT DEVELOPMENT								
PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (YEARS)		
				EXPECTED OUTCOMES	INDICATORS	1-3	4-6	7-10
Completion of missing links	Construction of a road linking from: Kimaeti-Malakisi-Cheptais-Kapsokwony-(Kaptama)-Kimilili-Kamukuywa Cheptais-Chepkube-Lwakhakha	Kimaeti, Malakisi, Cheptais, Kapsokwony, Kaptama, Kimilili, Kamukuywa, Cheptais, Chepkube, Lwakhakha	Ministry of roads and infrastructure KERRA	Improved access and connectivity in the county Increased intra and inter-regional connectivity Global competitiveness	Reduced number of decongested existing routes Increased number of annual tourist visits Increases access to economic and social services Improved intra and inter County linkages			
Opening up road corridors	Construction of a bypass Running from Nabanga town through D270- C41- C33- D258- Mateka-Myanga to A104 road	Nabanga, Ekitale, Sang'alo, Mateka, Myanga	Ministry of roads and infrastructure KENHA	Improved access and connectivity in the county	Reduced % traffic congestion			
	Bumula Lukhuna- Namanje-Maliki road							

PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (YEARS)		
				EXPECTED OUTCOMES	INDICATORS	1-3	4-6	7-10
Construction of bridges	Development of new bridges: Kimilili-Khaweti-kamukuywa R. Kuywa-Mwanani- Makhonge R. Misikhu-Sirendeji; Minata-Malakha Kimwanga-Kikwechi bridge; Mateka – Myanga Along rivers: Sosio, Kimilili, Kibisi, Teremi, Malakisi, Kapkateny R. Kuywa bridge, R. Kibisi bridge, R.Khalaba, R. Namosi, Along Kabuchai-Marakaru road Kapketi-Khwiroro-Kimilili road-Nasusi-Chesamis road Kimilili market- Sitati club- Kibisi river Taban-Nyamira bridge across R. Kiminini St. Anthony – Malinda S.A school Cheptais-Kimaswa-Kabendo bridge	Whole County	Ministry of roads and infrastructure	Improved access and connectivity in the county	Increased established Km accessible rural areas			
	Repairing of existing bridges: Nambombi-Kimwanga Mwibale bridge Ambani bridge							
	Construction of culverts: Sitikho road Kiminini-Brigadier road							

PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (YEARS)		
				EXPECTED OUTCOMES	INDICATORS	1-3	4-6	7-10
Improvement of transport infrastructure	Upgrading of existing air strips	Kanduyi, Webuye	Kenya Airports Authority	Improved air transport in the county	Number of upgraded railway lines and sub-stations			
			Kenya Railway Corporation	Alternative means of transport	Number of upgraded airstrips			
	Development of logistics town	Myanga, Kamukuywa, Matulo, Chepkube						
	Upgrading the railway line	Whole County						
	Upgrading of existing railway sub stations							
Upgrading the state of all roads	Improving drainage system on all roads	Bumula Kanduyi Tongaren Sirisia Webuye East/West Mt. Elgon Tongaren	Kenya Roads Board Ministry of roads and infrastructure	Improved road infrastructure	Increased number of improved access roads % of improved roads, footpaths and infrastructure in the County			

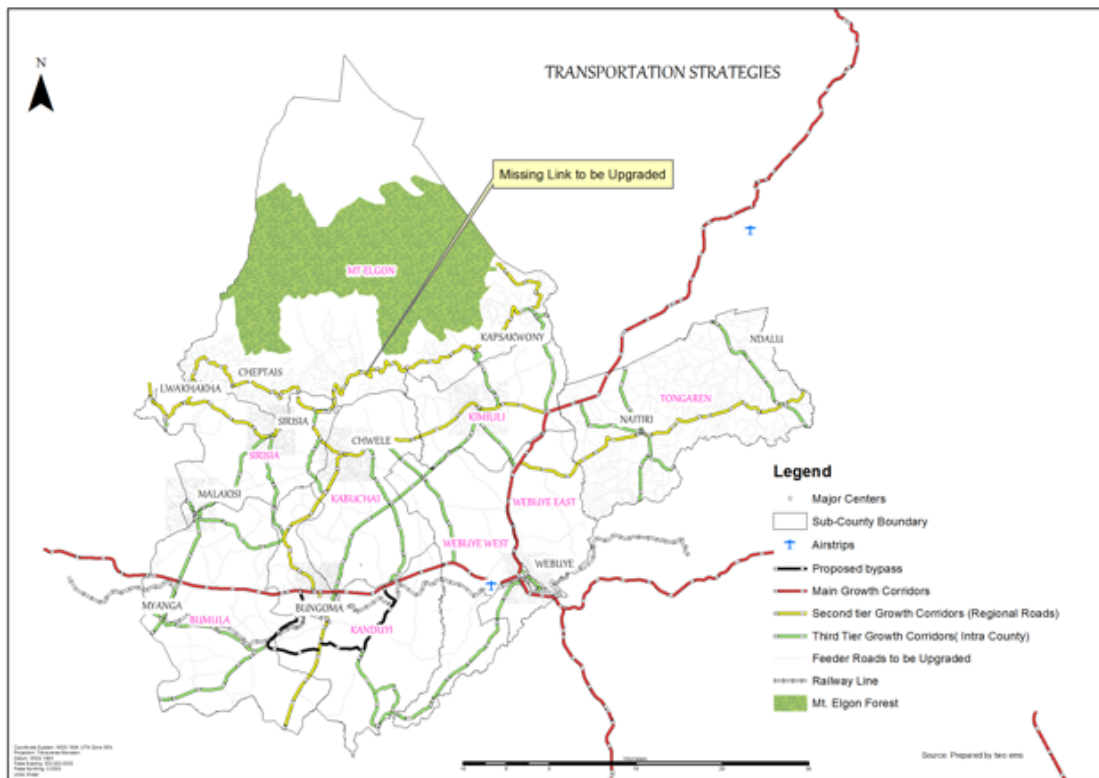
PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (YEARS)		
				EXPECTED OUTCOMES	INDICATORS	1-3	4-6	7-10
	Construction of walkways Bungoma CBD							
	<p>Gravelling, Murraming and compacting of all rural feeder roads:</p> <p>Bumula (Nasyand – Khasoko; Nasiande-Malakisi; Musikoma- Buyofu; Namusasi- Mungone; Lunawe- Namatotoa) Sio – Nasianda – Bunabobi – Myanga – Malakisi road Siboti(Health center) – Musakasa – Sango road Namanga – Nasianda – Buyofu road Mateka – Muanda Bungoma road (needs murraming) Sikinga market – Mabusi market (gravelling)</p> <p>Webuye east/west Misikhu- Makemo- Lukusi rd Mitukuyu- Nabuyole- Mikura rd Makuselwa- Sikoko- Malomonje rd Pan-paper – Musi road Molomonjo – Ndivisi – Misemwa road Milo – Sitikho road Teremi – Matiri road Muslim estate - Kitale</p> <p>Tongaren Siumbwa- Kakuni rd; Karima- Kibisi rd; Karima- Lunyu rd; Muliro- Musembe</p>							

PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (YEARS)		
				EXPECTED OUTCOMES	INDICATORS	1-3	4-6	7-10
	<p>Kabuchai Chebukaka-Kimalewa-Kibisi road</p> <p>Mabanga-Chwele road</p> <p>Chebukaka market- R. Kuywa-Kimalewa market-R.Kibisi connecting Chebkwabi market-Kimilili town</p>							
	<p>Mt. Elgon Kaptama-Kapsokwony-Cheptais Kaptalelio- Kongit-Konatatu Chwele – Namwela – Shikhundu – Chelebei road Kipsigon – Rwanda – Chesikaki – Toloso – Cheptais road Kabukeke – Toywandet road Cheptolong – Chepkebai road Kuywa – Kapkateny – Chetonong – Kipsigrok Chebyuk – Kopsiro road Kammeru – Namorio – Kimilili road Kimobo – Kimilili road Chemeses – Kipchiriak road Mugaa road Toroso-Tuikut-Kaptoboy-Kamarang-Cheptais forest station-Cheptais Kipsigon- Rwanda-Chesikaki- Toroso-Cheptais road</p>							

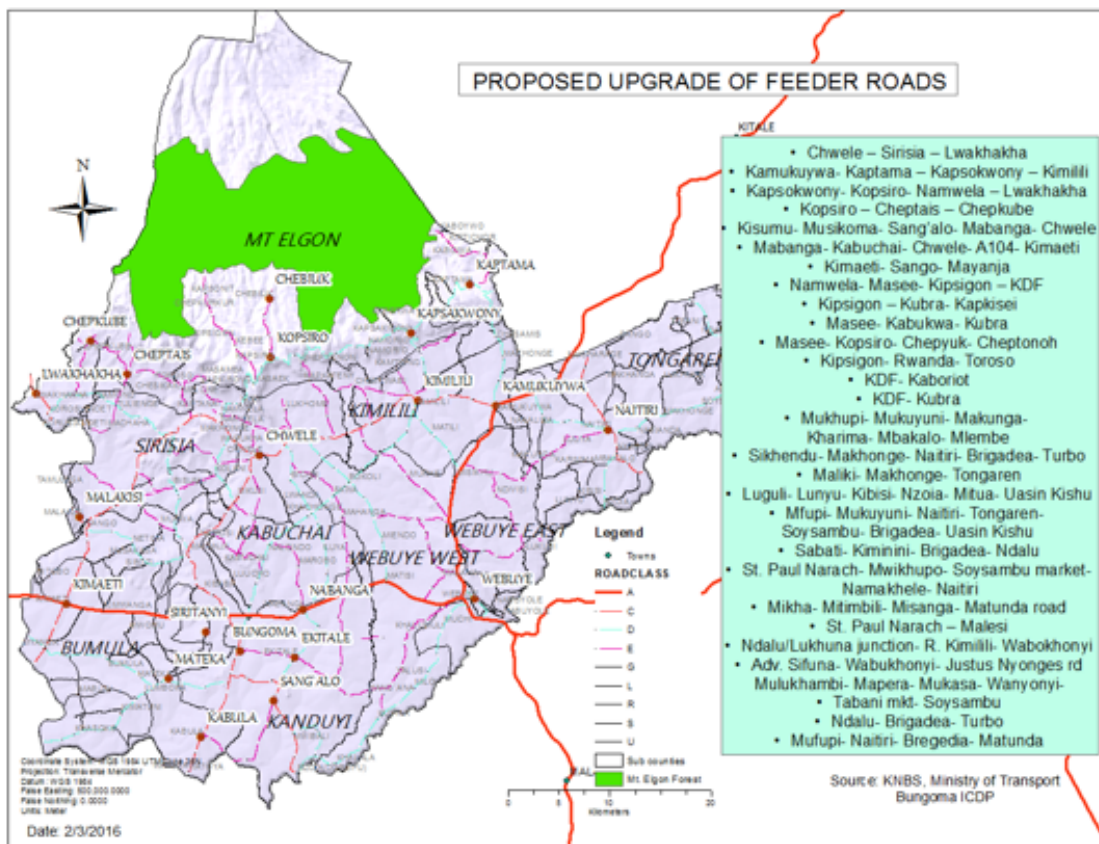
PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (YEARS)		
				EXPECTED OUTCOMES	INDICATORS	1-3	4-6	7-10
	<p>Chesikaki- Kaboriot road; Chesikaki- Chesigwo- Chelebei road</p> <p>Chepyuk- Tomoi- Chemomul- Kibusi- join to Laboat</p> <p>Sowes- Kapkwes- Cheptais forest station- Kabero- Kamarang</p> <p>Bukonoi- Emanang- Chemuses- Brukenwo</p> <p>Cheptais- Chesiro bridge- Chebwek- Chesukeem</p> <p>Mulatiwa- Chemondi- Kimama- Kapkurongo road</p>							

PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (YEARS)		
				EXPECTED OUTCOMES	INDICATORS	1-3	4-6	7-10
	Tarmacking of major roads: Chwele-Sirisia road Misikhu-Brigadier road Kamukuywa-Kaptama-Kapsokwony Sirisia Road Musikoma-Boyufu Road Kimaeti-Malakisi-Korisiandet Road Musikoma – Mateka – Khasoko road (to be tarmacked) Kaptama-Kapsokwony-Kopsiro-Kipsigon-Chesikaki-Cheptais-Chepkube road Sikata- A104 road-Chwele Mabanga- Ekitale-Sang’alo Mabanga- Ekitale centre- Bungoma-Kakamega road Dorofu- Musikoma road Bukembe-Mwibale road Misikhu – Matunda road							
	Reclaiming of encroached road reserves							
	Hiring professional contractors							
	Employment of local youths for road construction and maintenance							

PROGRAMMES	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (YEARS)		
				EXPECTED OUTCOMES	INDICATORS	1-3	4-6	7-10
Improving traffic flow	Educating of the motorbike riders regarding safety on roads	Kanduyi	NTSA Ministry of roads and infrastructure	Reduced accidents from bodaboda sector	Number of reduced accidents from bodaboda riders % of traffic flow during peak times			
	Implementing traffic laws	Naitiri, Bukembe, Bumula, Webuye town		Ease of traffic flow				
	Traffic segregation							
	Development of Bodaboda and commercial vehicles parking and terminus							
	Development of truck parking bay at Bukembe							



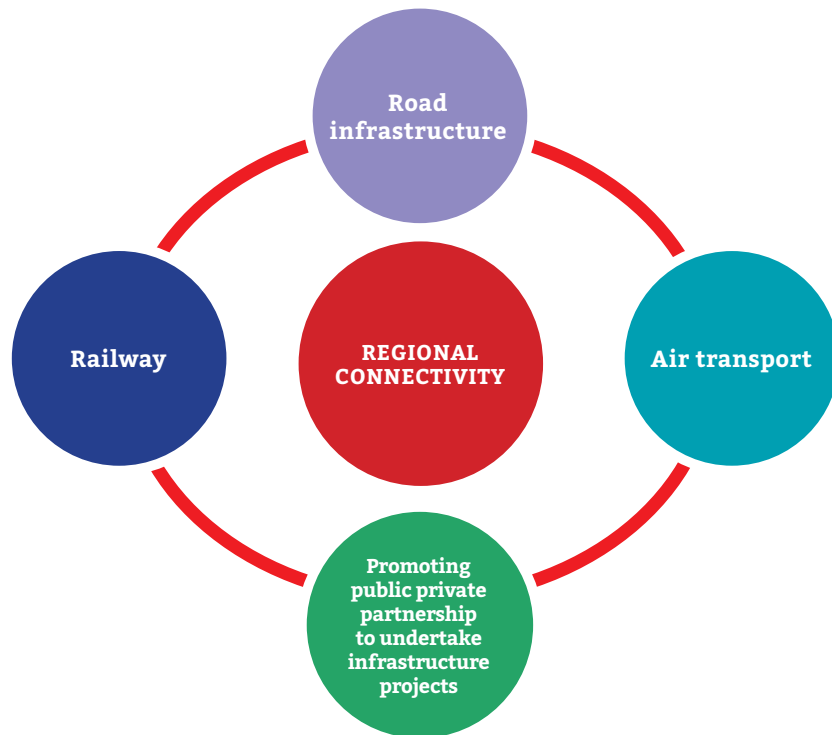
Prepared by: Two Ems Associates, 2015



Prepared by: Two Ems Associates, 2015 (Adated KNBS, Minstry of Transport, CIDP Bungoma)

TRANSPORT FLAGSHIPS: REGIONAL CONNECTIVITY

The County will boost economic growth by developing its transport infrastructure. The flagship project will focus on enhancing connectivity to promote competitiveness of the County with its neighboring country. This can be done through:



The objectives of this flagship project are:

- To create an enabling business environment for trade
- To establish an integrated transport system

Road infrastructure development

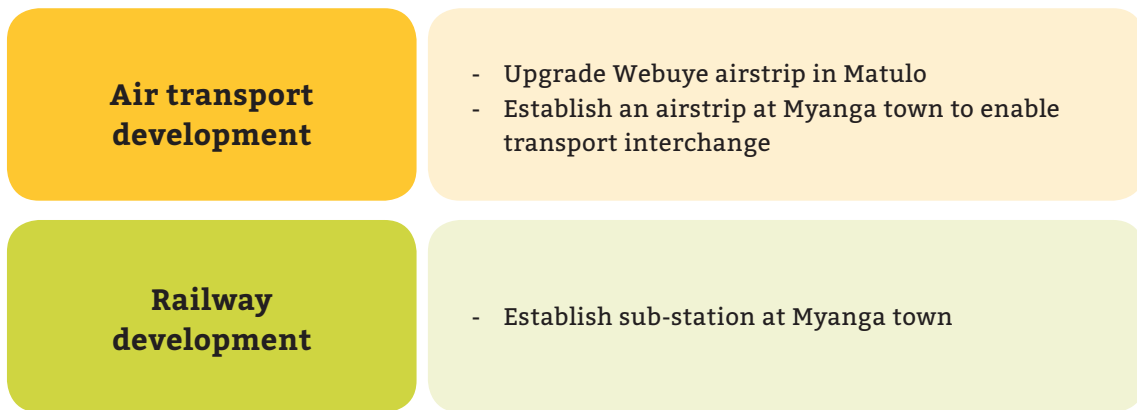
It aims at enabling connectivity between:

- Bungoma County and Malaba and Jinja
- Bungoma county and other counties and within the county

Strategies

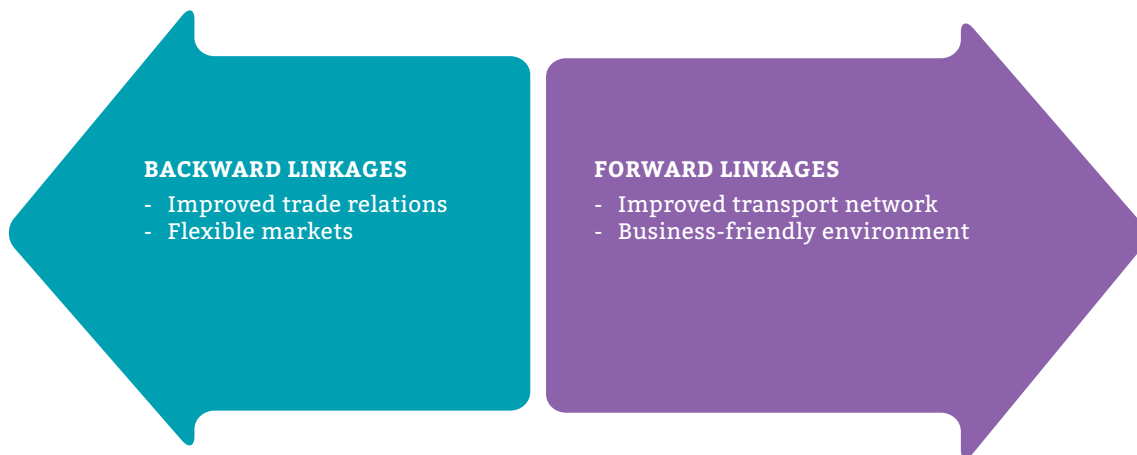
- Establish missing links along the transport corridors Kimaeti-Malakisi-Lwakhakha-Cheptais- Kapsokwony-Kamukuywa to link lwakhakha border to Malaba.
- Tarmac Chwele-Sirisia and Lwakhakha road to facilitate flow of goods and services
- Establish Truck bays in strategic centres like Bukembe, Kimaeti and Kanduyi





Prerequisites for success

- Political good will
- Preliminary studies on appropriateness of the location
- Public private partnership protocols
- Developing a transport plan

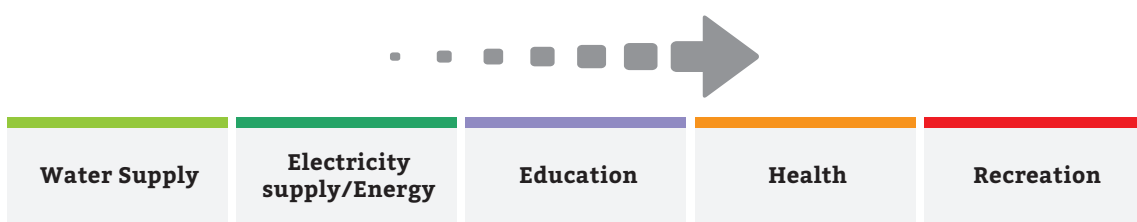


Impacts

- Regional integration
- Regional connectivity
- Improved infrastructure development
- Improved economic growth

12.2.4 APPROPRIATE INFRASTRUCTURE PROVISION STRATEGIES

Towards improved living standards for the people of Bungoma County, provision of improved, accessible and efficient infrastructure services and utilities within the sub-sectors below will be promoted:



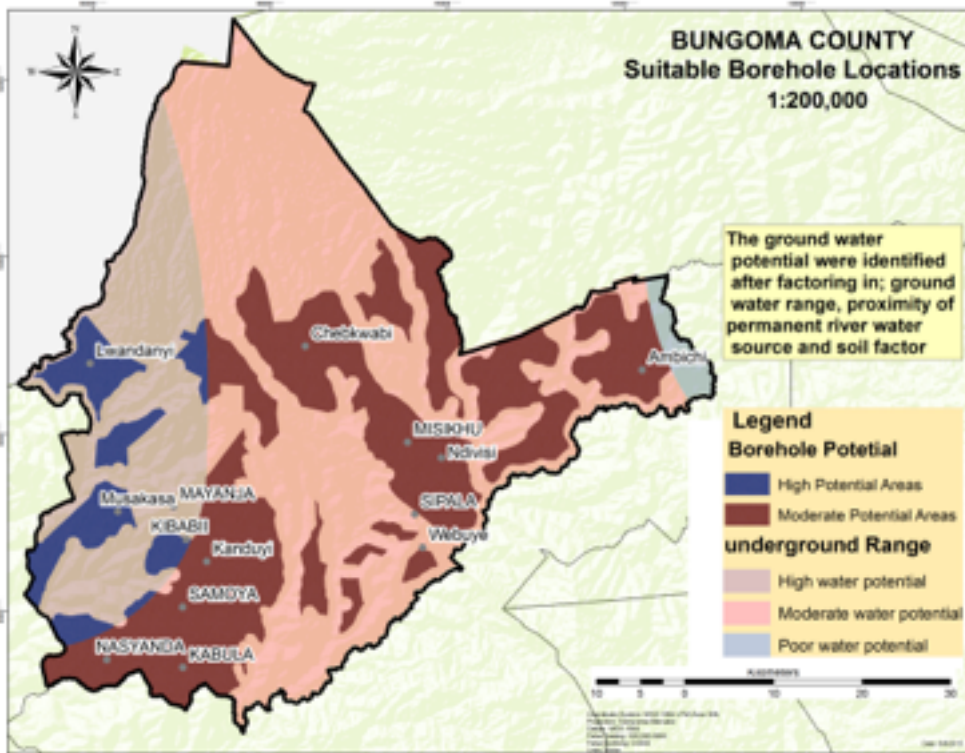
B). WATER SUPPLY STRATEGY

WATER SUPPLY								
PROGRAMME	ACTIVITIES	LOCATION	ACTORS	MONITORING & EVALUATION		TIME FRAME		
				Expected Outcomes	Indicators	1-3 yrs	4 -7 yrs	8-10 yrs
To ensure that the supply of water in the county is adequate and more sources of clean and safe water are exploited. Piped water supply and treatment.	<p>Conservation of water catchment areas</p> <p>Policies and laws safeguarding conservation of water catchment areas</p> <p>Community forums.</p> <p>Afforestation campaigns</p>	Mt. Elgon water tower. All the forested areas.	Ministry of water. NEMA. NGOs. CBOs. WRUAs	Conservation of the water catchment areas	<p>Increased number of Conservation programmes by the community.</p> <p>% of increased vegetation cover in the forested areas.</p>			
	<p>Encourage water harvesting at household level and institutional level.</p> <p>Use of mass media & community forums.</p> <p>Provision of subsidies to the community to purchase water tanks</p>	<p>Residential areas in all sub counties</p> <p>Bisunu; Chongoyi; Namwanga; Lutaso; Nabulooli; Chebikutuni, Chemwesus dam, R.Sio</p>	CBOs. NGOs. County government WRUAs	<p>Water storage for future use.</p> <p>Improved water supply for the residents.</p>	Increased number of water tanks.			
	Exploration of underground water through conducting feasibility studies	Lwandanyi, Misakasa, Kibabii, Mayanja, Chebkwabi, Kabula, Misikhu, Ndivisi, Sipala, Webuye, Ambichi	Ministry of water. NGOs WRUAs	Improved access to water supply	Increased number of boreholes and wells in the county			

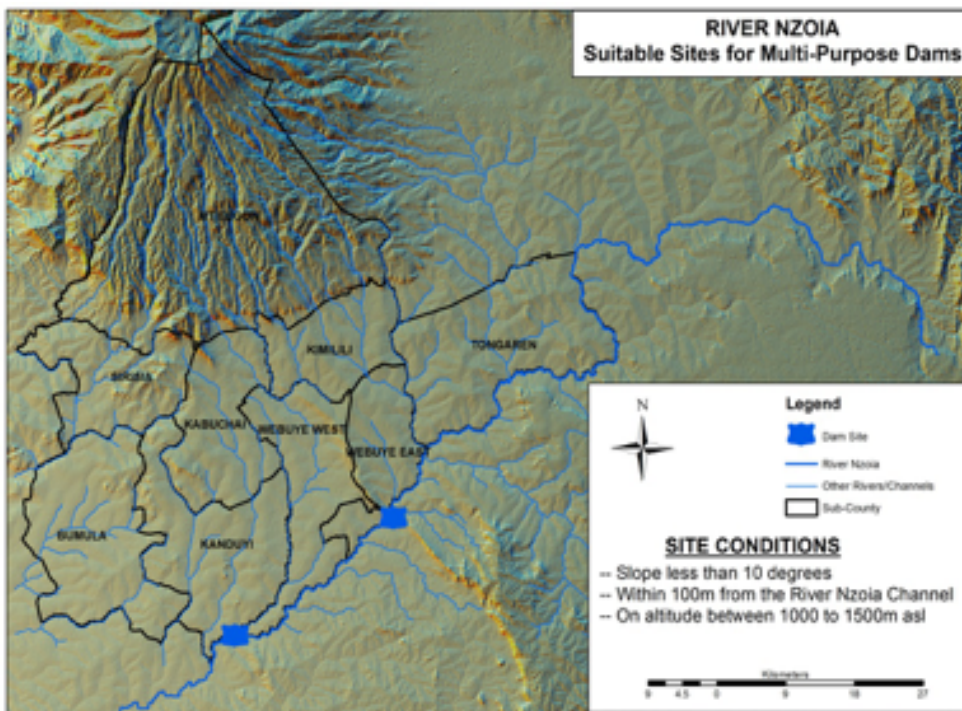
PROGRAMME	ACTIVITIES	LOCATION	ACTORS	MONITORING & EVALUATION		TIME FRAME		
				Expected Outcomes	Indicators	1-3 yrs	4 -7 yrs	8-10 yrs
	Construction of dams	Next to major rivers: R. Nzoia, R. Lwakhakha, R. Malakisi, R. Chemwa, R. Kuywa	Ministry of Water NZOIWASCO	Water storage for future use.	Increased number of constructed dams for water storage.			
	Tap water from existing dams			Improved water supply in the county.	Increased % of supply of water for domestic use			
	Rehabilitation and fencing of dams	Kabianga dam, Mutonyi; Nabumukoya; Wabukhonyi						
	Provision of water through gravity supply systems and piped water systems	Bosio, Nangili and Silanga dams ,Kisawai dam in Musakasa, Kimwanga dam, Matili dam, Lutonyi dam, Misikhu dam						
	Drilling of boreholes	Mt. Elgon, Marakari/ tuuti, Kibabii Luucho hills						
	Revival of stalled water projects	Chebukunyi, Sikata, Mateka, Nandingwa, Bumula						
	Put up water kiosks	Ng'oli water project, Kamnoru Samboti Kimobo Community Water project, Nadingwa water project, Kamtiong Kamusinga water project, Khalaba water project Marakari/ tuuti						

PROGRAMME	ACTIVITIES	LOCATION	ACTORS	MONITORING & EVALUATION		TIME FRAME		
				Expected Outcomes	Indicators	1-3 yrs	4 -7 yrs	8-10 yrs
	<p>Construction of water points every 500m in informal settlements</p> <p>Establishment of a water testing laboratory</p>	<p>Informal settlements within Bungoma, Webuye, Kimilili</p> <p>Sirisia</p>	<p>Ministry of Water</p> <p>Ministry of Health</p> <p>NZOIWASCO</p>	<p>Increased supply of clean and safe water for residents in the county</p>	<p>Increased supply of water.</p> <p>% increase expanded water lines in the county</p>			
	<p>Put up toilet facilities</p> <p>Establish a dumping site</p> <p>Provide litter bins</p> <p>Construction of a sewerage system</p> <p>Develop a solid waste recycle plant</p>	<p>Every market centre (Namwela market, Kolani market, Lwakhakha; Namwela; Kolani)</p> <p>Kamukuywa, Kimilili, sitabicha, Chwele, Mateka, Behind pan paper</p> <p>All towns</p> <p>Kimilili, Kabuchai, Bumula, Mayanja, Kapsokwony, Cheptais, Webuye</p> <p>Kanduyi</p>	<p>Ministry of Health</p> <p>Ministry of Water</p> <p>NZOWASCO</p>	<p>Improved access to sanitation facilities</p>	<p>Increased number of sanitation facilities in the County</p>			

Map 38: Suitable Borehole Locations



Map 40: Suitable Multi-purpose Dams Location



Prepared by: Two Ems Associates, 2015

C). ELECTRICITY SUPPLY STRATEGY

ELECTRICITY SUPPLY								
PROGRAMME	ACTIVITIES	LOCATION	ACTORS	MONITORING & EVALUATION		TIME FRAME		
				Expected Outcomes	Indicators	1-3 yrs	4 -7 yrs	8-10 yrs
To ensure that all market and residential areas are connected to power	Complete rural electrification programmes	All sub counties	County government Ministry of Energy & Natural resources KPLC Private sector	Electricity supply in all rural areas and centers	% improvement of investment in commerce % increase in business productivity Reduced rate of insecurity in rural markets			
	Resolve power outages issues by ensuring that transformers are of the right capacity	All sub counties		Stable electricity supply in all sub counties	% increase in business productivity			
	Invest in solar power generation Invest in hydro-electric power generation	Bumula, Kanduyi, Webuye, Tongaren, Chwele, Nalondo, Chebukwa R. Kuywa		Alternative source of power Stable electricity supply	% increase in business productivity Increase in % of rural electrification project			
	Putting up street lights in all major market centers Installation of lightning arrestors	Market centers in all sub counties Roads: Kapsokwony Kapsakwony – Mtoni Bumula		Enhanced security in market centers	% increase in business productivity			

D). EDUCATION DEVELOPMENT STRATEGY

EDUCATION DEVELOPMENT								
PROGRAMME	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME		
				Expected Outcomes	Indicators	1-3 yrs	4-7 yrs	8-10 yrs
To improve access to education for skill development for growth of diverse, modern and improved human resource	<p>Personnel</p> <p>Establishment of Teachers Training Colleges</p> <p>Establishment of a Medical Training College</p> <p>Increase teaching personnel in primary schools</p>	<p>Webuye, Mt. Elgon Nangili, Cheptais, Kopsiro, Bumula</p> <p>Kaptama, Kimilili</p> <p>Primary schools within all sub counties</p>	<p>Ministry of Education</p> <p>County Government</p>	<p>Improved teacher-pupil ratio</p> <p>Better quality education</p> <p>High literacy levels</p>	<p>% increase in enrolment levels</p> <p>Increased number of teachers in schools</p>			

	<p>Primary schools, Secondary schools & ECD infrastructure</p> <p>Build more primary schools & ECD Centers within deficient areas</p> <p>Ensure that all primary schools have title deeds</p> <p>Provision of more books, furniture and other facilities to enhance quality education</p> <p>Ensure all schools have water and energy supply</p> <p>Construction of more classrooms to accommodate all students</p> <p>Employment of more teachers</p> <p>Incorporation of ICT within schools by providing computers and incorporating ICT into curriculum</p> <p>Establishment of ICT centres</p> <p>Rank the schools to identify National and County schools</p>	<p>Mt Elgon – Chelebei ward, Bokoli, Kebining, Khalaba ward, Sang’alo West ward, Kimilili</p> <p>Primary and secondary schools in all sub counties</p> <p>Bokoli, Webuye, Mt. Elgon, Bumula</p> <p>Primary schools in all sub counties</p> <p>All primary and secondary schools within County</p> <p>1 per ward</p> <p>All sub counties</p>	<p>County Government</p> <p>Local Community</p> <p>Ministry of Education</p> <p>Private sector</p> <p>NEMA</p> <p>KPLC</p>	<p>Well-equipped schools</p> <p>Higher enrolment</p>	<p>% improvement of student performance</p> <p>Balanced teacher-pupil ratio</p> <p>% increase attendance</p>			
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	<p>Tertiary Institutions</p> <p>Establishment of 2-5 tertiary institutions per ward</p> <p>Elevation of some technical schools into universities</p> <p>Equip the existing tertiary institutions with facilities and personnel</p> <p>Incorporate courses in: Animal Health, Farm Management, Soil analysis & Entrepreneurship in selected tertiary institutions within the county</p> <p>Establishment of Agricultural Industrial Technology Centers</p> <p>Establish a empowerment facility for ECD teachers</p> <p>Promote PPPs in university development</p> <p>Zoning to be done in the university districts</p>	<p>All sub counties</p> <p>Sihoko Technical into an Institute in Ndivisi ward, Chepyuk Polytechnic in Kubra, Kabula Youth Polytechnic, Sigulu and Marachi polytechnics</p> <p>All Sub-Counties</p> <p>Sang’alo Institute, Kibabii University, MMUST and other Agricultural Training Institutes within the County</p> <p>Kimilili, Chwele, Bungoma, Webuye and Sang’alo</p> <p>Ndal, Tongaren, Mukuyuni</p> <p>All Sub-Counties</p> <p>All tertiary institutions</p>	<p>County Government</p> <p>Ministry of Education</p> <p>Universities’ Boards</p> <p>NEMA</p> <p>Ministry of Agriculture</p>	<p>Higher enrollment into tertiary institutions</p> <p>Tailor-made education courses to exploit resources within the county</p> <p>Adequate and sufficient number of tertiary institutions</p>	<p>% increase in enrollment to tertiary institutions within the county</p> <p>% increase of empowered and educated human resource base</p> <p>Increased number of new relevant courses taught</p> <p>Enrollment number into new courses</p>			
	<p>Cater for special needs schools and education</p> <p>Develop a film, drama, music production house</p> <p>Build a farmers training centre</p> <p>Establishment of community craft centres</p>	<p>All sub counties (Kabuchai, Kanduyi Kabuchai Every ward</p>	<p>County government</p> <p>Ministry of Education</p> <p>Ministry of Health</p> <p>Private sector</p>	<p>Presence of well-equipped schools for children with special needs</p>	<p>% Increase in literacy levels among the physically challenged</p>			

E). HEALTH DEVELOPMENT STRATEGY

HEALTH								
PROGRAMME	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME		
				Expected Outcomes	Indicators	1-3 years	4-7 years	8-10 years
To improve the efficiency and access to health facilities and services	Training, recruitment and deployment of more medical personnel	All sub counties	County government Ministry of Health	Adequate and skilled health personnel	Improved health status of population			
	Construction of appropriate and equipped health facilities	All sub counties	Private sector	Ease of access to proper health care Reduced congestion in hospitals Reduced mortality and morbidity rates	Up to standard health facilities and services with maternity wards, labs, surgery rooms, rehabilitation centers, ambulance vehicles etc.			
	Upgrading of the existing health facilities	All sub counties	County government Ministry of Health	Healthier population	Increased bed capacity for patients Adequate stock of drugs for disposition to patients			
	Upgrading physical infrastructure to enable access to health facilities Improve sanitation through construction of water points	Mt. Elgon, Sirisia, Bumula, Tongaren sub counties Bumula, Webuye West	County Government NGOs Ministry of Health	Ease of access to health facilities Sanitary health facilities	Reduced distance travelled to a health center Quick response to emergency cases Consistent water supply for health facilities			
	Establishment of partnership between county government and other health providers	All sub counties	NGOs Private sector CBOs	Ease of access to health facility Overall health improvement of the residents	Availability of health facilities in the rural areas Reduction in the health charges on health services			

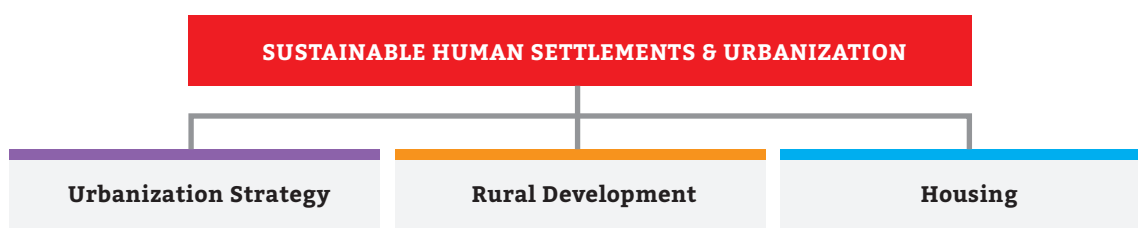
	Construction of mortuaries proximate to major hospitals	Tongaren, Mt. Elgon (Kapsokwony, Cheptais, Kopsiro)	County government	Employment creation	Reduced stress levels and expenditures for bereaved families			
	Allocation of adequate land for public cemeteries	Kanduyi, Kimilili, Bumula	County government		Improvement in general outlook of urban and rural areas			

F). RECREATION FACILITIES DEVELOPMENT STRATEGY

RECREATION FACILITIES								
PROGRAMME	ACTIVITIES	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME		
				Expected Outcomes	Indicators	1-3 years	4-7 years	8-10 years
To provide intrinsic environmental, aesthetic and recreation benefits to urban areas	Social halls and parks Construction and rehabilitation of stadiums Construction of social halls/ Talent centers with public libraries Space allocation for establishment of public parks	Kimilili, Tongaren, Webuye At least one per sub county Bungoma (airstrip space), Webuye (Mayemo dam)	County government Ministry of gender, youth & Sports NGOs Local CBOs Private sector	Reduced crime rates among the youth Growth of entertainment industry within Bungoma Enhanced community life	Improved County tax base Improved health of the general county population Ease of access to ICT facilities for the public Diversification of community members in livelihood			

12.2.5 SPATIAL DEVELOPMENT STRATEGY

This primarily focuses on promotion of livable and sustainable human settlements through increased investment in the following sub-sectors:



A). URBANIZATION STRATEGY

1. PLANNING EXISTING URBAN AREAS

1. PLANNING EXISTING URBAN AREAS:								
PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Yrs):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
Preparation of Local Urban Development Plans to zone land-use activities and promote control development	Preparation of physical development plans for rapidly emerging 'special' towns/ corridors in county.	Kibabiii, Chwele, Kanduyi, Kamakuhywa-Misikhu corridor	Ministry of Lands in Bungoma county. Private sector NEMA KPLC Kenya Urban Roads Authority	Well planned urban centres	Physical Development Plans for all major towns in county Increased number of zoning plans formulated Increase in number of implemented urban plans % decrease in urban sprawl % increase of infrastructure services provided % increase in urban landscape design projects Reduced number of informal settlement within urban areas % improvement of economy of urban centers % decrease in incidences of insecurity within urban areas			

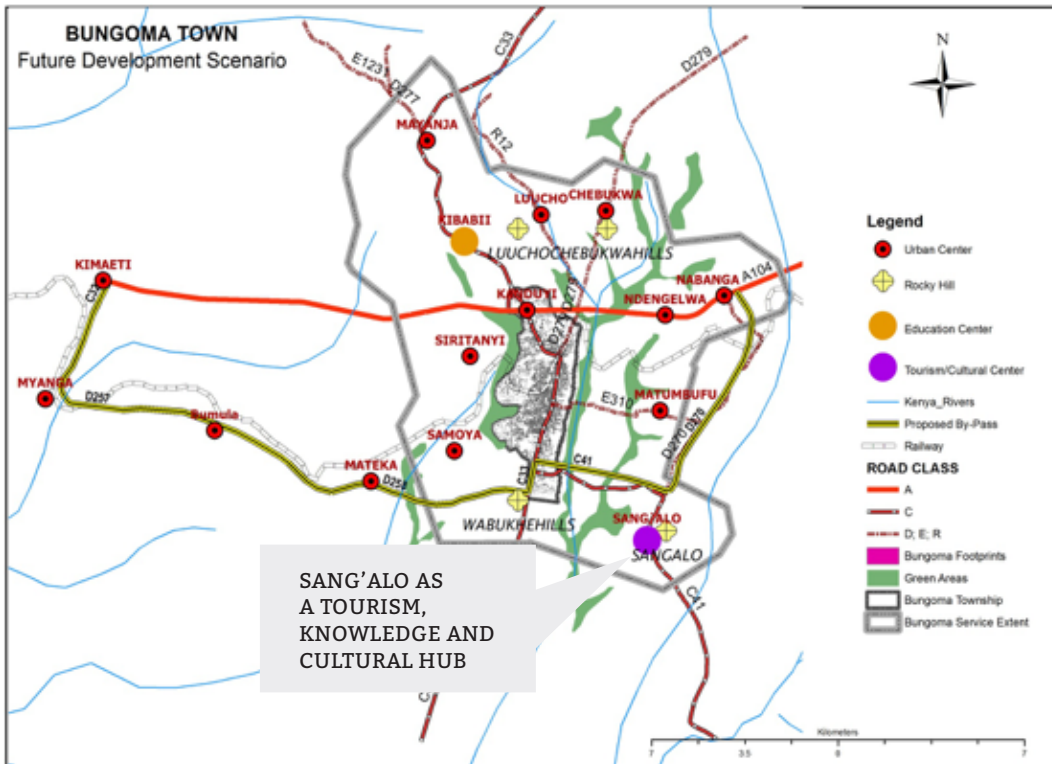
	Implementation of existing local urban plans for all urban centres.	Bungoma, Webuye, Kimilili, Chwele, Sirisia, Kapsokwony, Naitiri, Tongaren, Cheptais, Kamukuywa, Lwakhakha, Bumula, Misikhu, Myanga						
	Identification of informal settlements for upgrading and urban renewal sites in major towns.	Bungoma, Kimilili, Webuye, and Chwele towns						
Control urban sprawl	Encouraging vertical development/ more compact urban areas	All urban centers						
	Delineate and respect urban fringes to control urban sprawl							
Essential service provision for urban centres	Rehabilitation/ establishment of public utilities in major towns such as sewerage treatment systems/ plants, water treatment plants and landfills/ dumpsites in all major towns.	Bungoma, Kimilili and Webuye towns						
	Establishment of NMT infrastructure in all major centres	Bungoma, Webuye, Kimilili						
	Installation of CBD-wide street lighting systems for all major centers	Webuye, Kimilili,						

PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Yrs):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
	Ensuring all markets and bus-parks within all major centers are orderly and have functional and clean toilets and waste collection systems	Bungoma, Webuye, Kimilili Chwele, Sirisia, Kapsokwony, Naitiri,						
	Increasing the number of police posts and patrols within all major centers for security improvement	Kimilili Chwele, Sirisia, Kapsokwony, Naitiri, Tongaren, Cheptais, Kamukuywa,						
	Ensuring stable electricity supply to all urban centers to support business	Bungoma, Webuye, Kimilili, Chwele, Tongaren, Lwakhakha, Bumula, Misikhu, Myanga						
Beautification	Preparation of town-wide beautification plans for the CBDs of major towns (greening along major arteries/ roundabouts, urban furniture and landmarks, repainting of old structures)	Bungoma, Kimilili and Webuye towns						

PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Yrs):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
	Greening and beautification all major centers	Chwele, Sirisia, Kapsokwony, Naitiri, Tongaren, Cheptais, Kamukuywa, Lwakhakha, Bumula, Misikhu, Myanga						
	Having community town cleanup days monthly to raise awareness on behavioral change for cleaner urban centers	Bugoma, Kimilili and Webuye			% increase in participatory clean-up projects			
Urban housing	Encourage PPP initiatives to promote investment in housing sector	Bugoma, Kimilili and Webuye			Number of increased decent urban housing provision			
Public land	Clearly mark out and fence public interest land within urban centres to protect it from land grabbing, to provide space for future expansion or construction of public utilities/ facilities	Bugoma, Kimilili Mt. and Webuye			Reduced number of land grabbing cases			

a). Bungoma Town:

Map 23: Bungoma Town: Future development Scenario



30M buffered wetlands, Conserved green spaces in Kanduyi Town-along the seasonal rivers of Sio and Khabala

BUNGOMA IN FUTURE

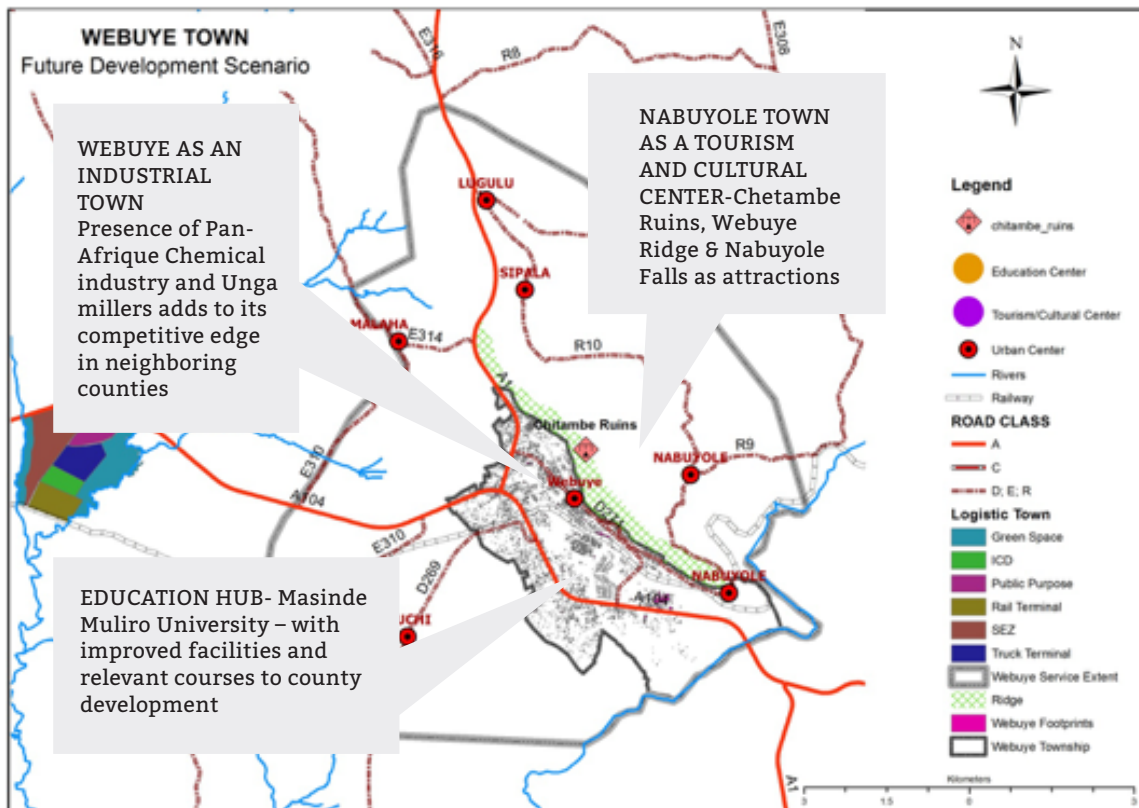
- Extended Urban Fringe will include towns: Mayanja-Mabanga-Sang'alo-Samoya-Siritanyi-Kibabii
- CBD Urban renewal and Informal Settlement upgrading
- Establishment of Local Physical Development Plan
- Increased densification and compact city
- Booming hospitality industry-Increased tourism activities (Sang'alo Hills, Wabukhe Hills, Luuchochebukwa Hills)
- Improved building standards/vertical and less horizontal developments
- Promotion of Non-Motorized Transport



Urban Renewal and Housing Upgrading

b). Webuye Town:

Map 31: Webuye Town: Future Development Scenario



WEBUYE IN FUTURE

- Extended Urban Fringe will include towns: Malaha-Lugulu-Sipala-Nabuyole-Muchi
- CBD Urban renewal and Informal Settlement upgrading
- Establishment of Local Physical Development Plan with planned land use plan
- Increased densification and compact cities
- Boosted tourism and hospitality industry (Chetambe Ruins, Nabuyole Falls, Webuye Ridge)
- Promotion of Non-Motorized Transport
- Establishment of the aerotropolis at Matulo

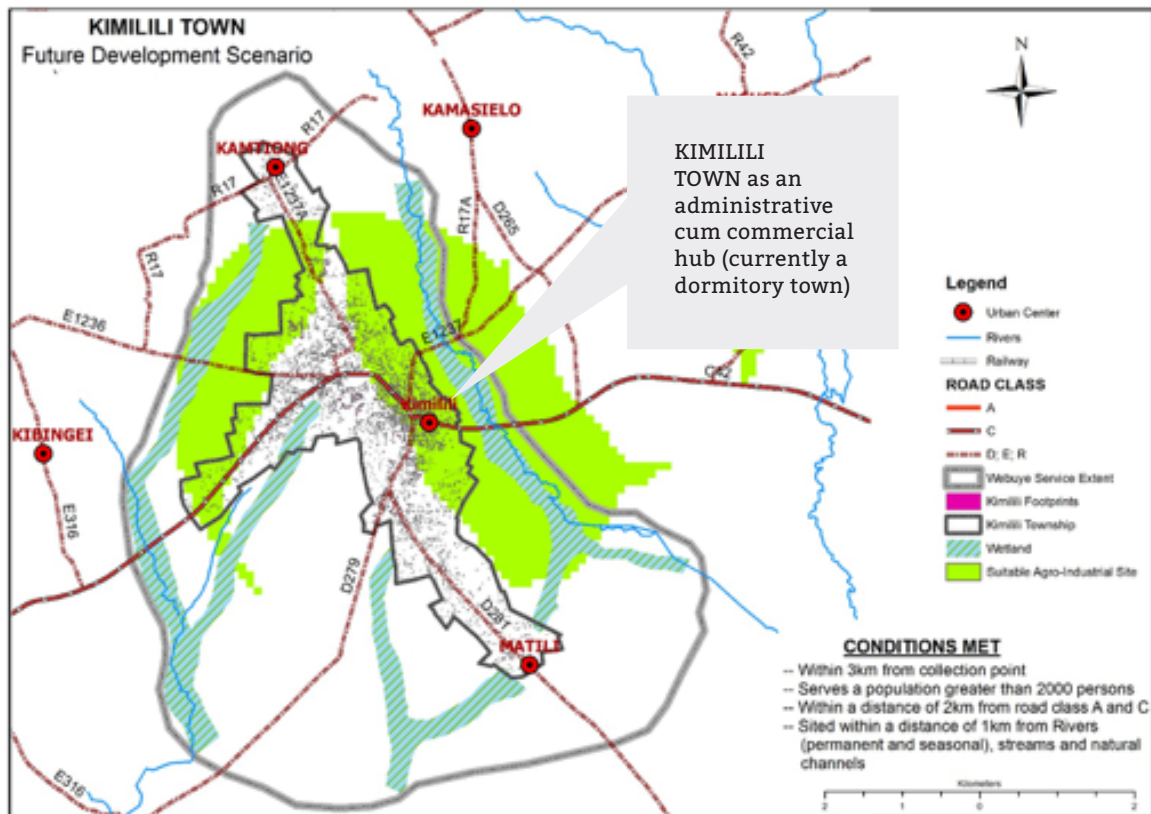


Urban Renewal and Housing Upgrading



c). Kimili Town:

Map 33: Kimilili Town: Future Development Scenario



KIMILILI IN FUTURE

- Extended Urban Fringe will include towns: Kamtong-Matili
- Increased agro-industrial activities and value addition related industries
- Increased green spaces and conserved wetlands
- Urban renewal and Informal Settlement upgrading
- Establishment of Local Physical Development Plan with planned land-use plan
- Increased densification and compact cities

Kimilili as a commercial hub dealing in agricultural inputs like fertilisers and machinery.



Conserved wetlands and increased Green spaces



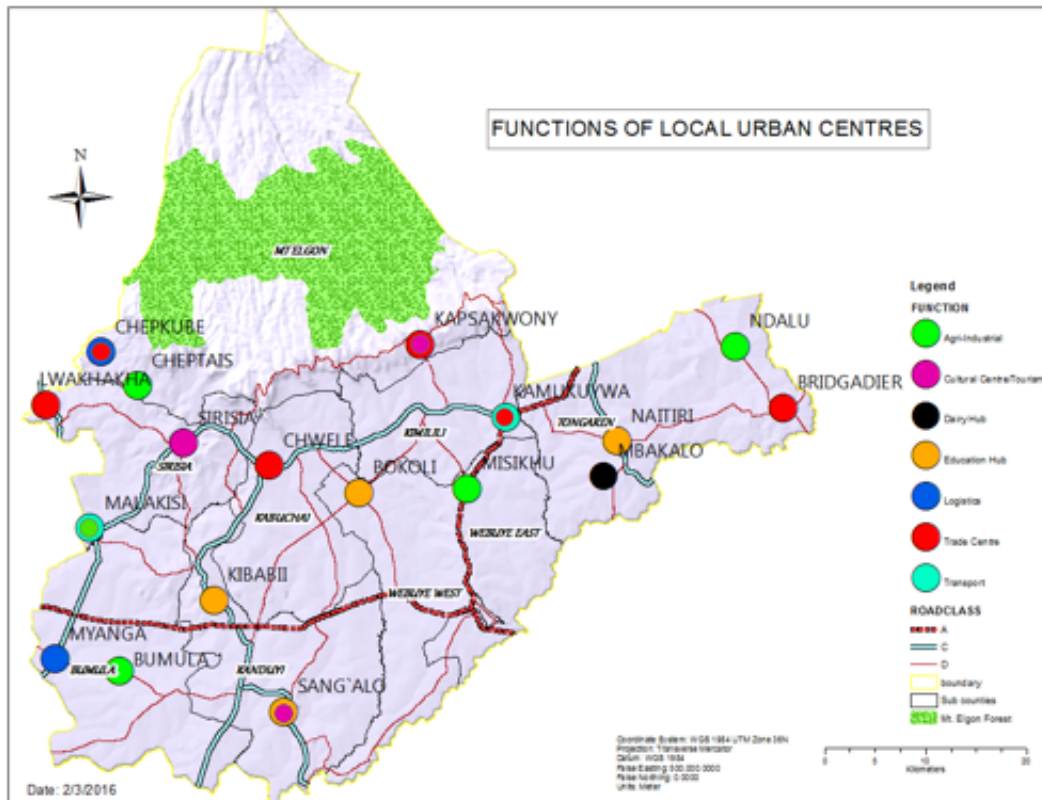
Large-scale horticulture farming (fruits & vegetables)

2. DEVELOPMENT OF NEW TOWNS BASED ON URBANIZATION DRIVERS

2. DEVELOPMENT OF 'NEW' TOWNS BASED ON URBANIZATION DRIVERS								
PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Yrs):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
Detailed planning for development of other existing towns into specialized hubs (growth hubs) based on urbanization drivers	Chwele as an Agro-Industrial Hub and Education Hub	Chwele	County government Local community Relevant government ministries Private sector Kenya Urban Roads Authority Kenya Rural Roads	Designated functions of the strategic towns along the transport corridor	Assigned functions to urbanization corridors Increased investment projects Increased Public Private Partnerships projects			
	Sirisia as a Cultural/ Sports Complex/ Tourism hub	Sirisia						
	Lwahakha as a Trade Center/ SME Town	Lwahakha						
	Sang'alo as a Knowledge/ Tourism Hub	Sang'alo						
	Cheptais as an Agro-Industrial Hub due to production centres and established infrastructure	Cheptais						
	Kapsakwony as a Tourism, sports complex, Food Basket Node/ Agribusiness, Green Energy zone	Kapsakwony						

PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Yrs):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
	Ndalú as an Agro-based Node	Ndalú						
	Bumula as an Agri-business industry/ Knowledge Hub-Supply of raw materials (sugar and groundnut factory)	Bumula						
	Kamukuywa as a Commercial Hub	Kamukuywa						
	Malakisi as a Transport Town,	Malakisi						

Map 35: Future Local Urban Centres



FUTURE OF LOCAL URBAN CENTERS

Agro-industrial towns

- CHWELE- Agro-trade node
- CHEPTAIS-Agro-industrial hub due to production centers and established infrastructure (COFFEE DEHUSKING FACTORY)
- NDALU- Agro-based Node
- BUMULA-Agri-business industry/ Knowledge Hub-Supply of raw materials (sugar and groundnut factory)
- TONGAREN- Agro-industrial town with emphasis on MAIZE MILLING
- MALAKISI-INDUSTRIAL CUM Transport Town (DUE TO EXISTING SOYA FACTORY, TOBACCO FACTORY)
- KAMUKUYWA- Transport/COMERCIAL CUM INDUSTRIAL Hub
- BRIGADIER- Commercial hub for agricultural produce

Transport towns

- LWAKHAKHA- Trade center/SMEs town, Due to strategic border locations
- CHEPKUBE AS A COMMERCIALCUM INDUSTRIAL CUM LOGISTIC HUB- PROPOSED BANANA FACTORY

Tourism towns

- SIRISIA-Cultural/sports complex/ Tourism –Physiographic endowment
- KAPSAKWONY- Tourism, sports complex, Food Basket Node/Agribusiness, Green Energy zone
- MT. ELGON GAME RESERVE-Tourism Hub due to presences of game reserve and National park (Maintain 10% forest cover)
- SIRISIA-Cultural/sports complex/ Tourism –Physiographic endowment

Education/Service hubs

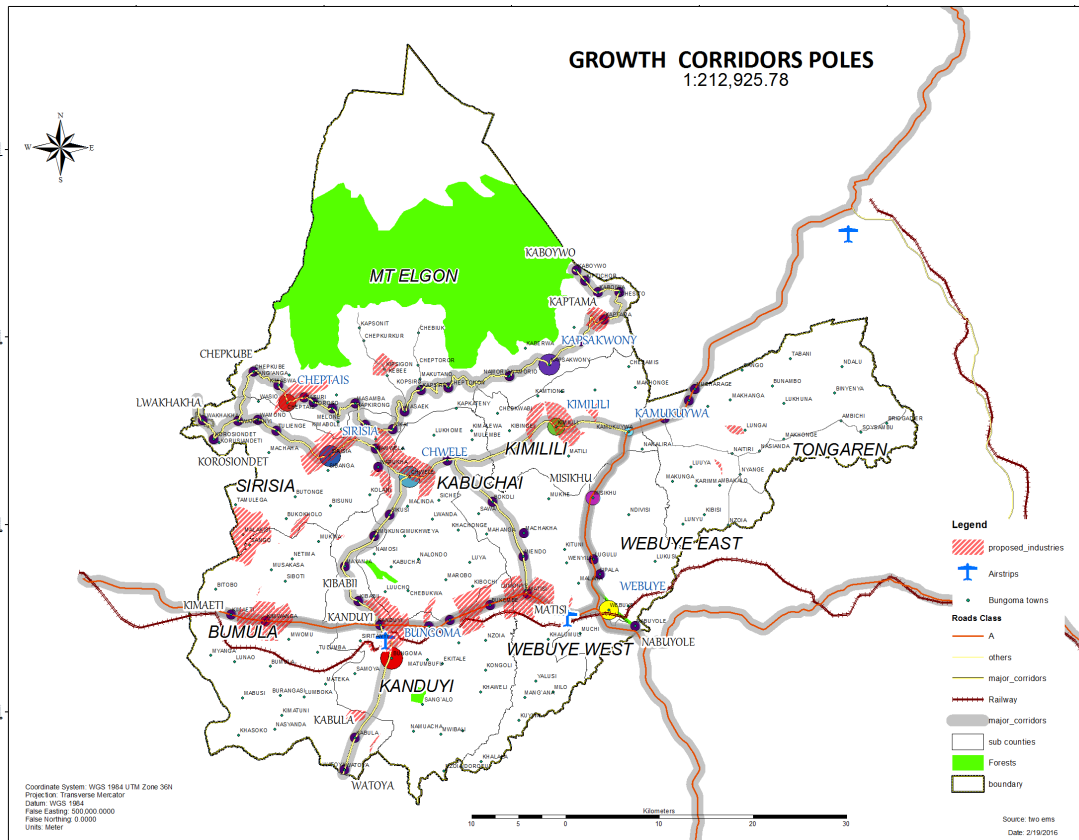
- BOKOLI- EDUCATON HUB (MASAKHA TECHNICAL INSTITUTE)
- LUGULU- Education and Health function
- NAITIRI- EDUCATION HUB PRESENCE OF NUMEROUS TERTIARY INSTITUTIONS
- KIBABII
- BUMULA

3. GROWTH CORRIDOR DEVELOPMENT STRATEGY

4. INDUCING DEVELOPMENT ALONG STRATEGIC TRANSPORT- SETTLEMENT CORRIDORS

PROGRAMMES:	ACTIVITIES:	LOCATION:	ACTORS:	MONITORING AND EVALUATION:		TIME FRAME (Yrs):		
				Expected Outcomes:	Indicators:	1-3:	4-7:	8-10:
Assign/ designate functions to the settlements through which the strategic corridor traverses which include: Agro/agribusiness based growth corridor poles- Livestock (Dairy/ Beef) Hubs: Cheptais, Mbakalo, Kisigon, Kaptama Crop Production: Cheptais, Kimilili, Chwele, Ndal, Bumula Tongaren Transport/ infrastructure driven growth poles- Logistics hubs and nodes in Matisi, Mayanja, Kamukuywa, Kimaeti, Bukembe Tourism based growth corridor poles- Towns along the proposed tourism circuit	Conduct validation fora with necessary/ affected stakeholders on the proposed new functions of the settlements which include: Agro/agribusiness based growth corridor poles- Livestock (Dairy/ Beef) Hubs: Cheptais, Mbakalo, Kisigon, Kaptama Crop Production: Cheptais, Kimilili, Chwele, Ndal, Bumula Tongaren Transport/ infrastructure driven growth poles- Logistics hubs and nodes in Matisi, Mayanja, Kamukuywa, Kimaeti, Bukembe Tourism based growth corridor poles- Towns along the proposed tourism circuit	Matisi Kimaeti Kibabii Chwele Bumula Ndal Sirisia Lwakhakha Bukembe Bokoli Kamukuywa Kapsokwony Cheptais Kipsigon	County government Local community Relevant government ministries Private sector Kenya Urban Roads Authority Kenya Rural Roads NEMA Local and international NGOs	Designated functions of the strategic towns along the transport corridor Growth of agricultural and livestock economy based urban centres Growth of touristic urban centres Planned emerging urban settlements Zoned land use activities Controlled urban developments	Assigned functions to urbanization corridors Increased investment projects in the Agriculture, Transport and Tourism sectors Increased Public Private Partnerships projects			
Prepare Local Urban Development Plans for the strategically identified towns	Preparation of Local Urban Physical Development Plans for proposed towns	Along urbanization corridors						
Develop infrastructure and services along the economic nodes identified	Establishment of serviced land through provision of roads, power and sewerage along these strategic within these strategic towns	Along urbanization corridors						
Controlled urban developments to Discourage unplanned development along the corridor	Delineation/ structuring of land-uses Zoning regulations, standards and laws for plot densities and building ratios Enforcement of planning law	Along urbanization corridors						

Map 36: Proposed growth corridor poles



EMERGING GROWTH CORRIDOR POLES

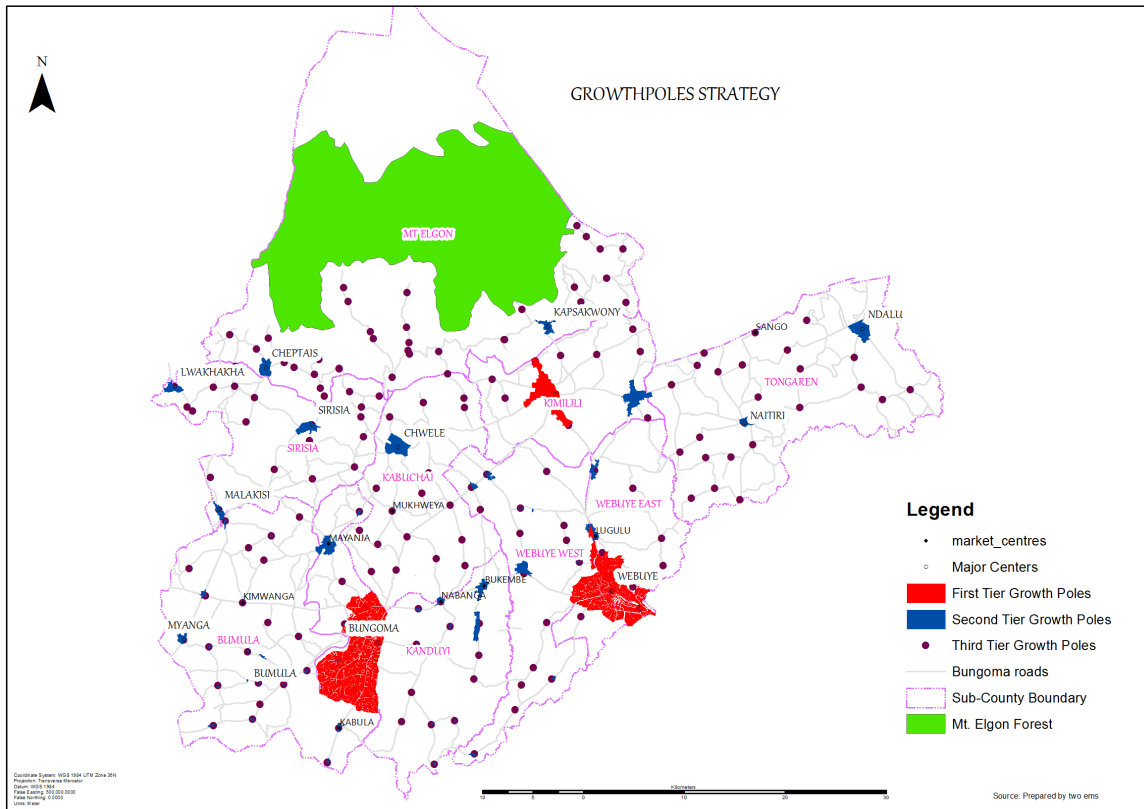
These strategies will transform the spatial and settlement outlook of identified growth poles into well planned urban areas to attract investments. The urban landscapes that emerge from the identified transport settlement corridors within Bungoma and induce urban development include:

- Agro/agribusiness based growth corridor poles- Livestock and agriculture value chain driven urban development in towns like Matisi, Mabanga, Kanduyi, Kimwanga, Chwele, Kimilili, Cheptais, Kaptama and Kisigon
- Transport/infrastructure driven growth poles- Emergence of logistic hubs and nodes along the urbanization corridors for towns like Matisi, Mayanja, Kamukuywa, Bokoli, Misikhu
- Tourism based growth corridor poles- Tourist attraction heritage sites, caves and activities will shape the formation of urban landscapes in town within which the transport corridor traverses. These include towns like: Kisigon (Chepkitale game reserve), Malakisi (Malakisi and Kabuchai Hills), Nabuyole (Nabuyole Falls), Sang'alo (Sang'alo Rock) and towns in which the, Musikoma, Dini ya Msambwa and Chetambe ruins are contained.

B). RURAL DEVELOPMENT STRATEGY

3. SERVICING RURAL AREAS AND CONSERVING PRIME FARMLAND								
PROGRAMMES	PROJECTS	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (YEARS)		
				EXPECTED OUTCOMES	INDICATORS	1-3	4-6	7-10
Improved service provision to rural settlements	Construction and maintenance of feeder roads.	Ndivisi, Naitiri, Cheptais, Kapsakwony, Lwakhakha, Marakaru Tuuti, Matulo, Bukembe West Luandanyi	County government Local community Relevant government ministries Private sector Kenya Urban Roads Authority Kenya Rural Roads NEMA Local and international NGOs	Improved life quality Highly serviced rural centers	Periods in times to access social amenities in rural settlements Number of mobile clinics, libraries and 'huduma centers'			
	Provision of mobile social services (mobile clinics, libraries, mobile 'huduma centers') to cater for the dispersed settlements.							
Conservation of prime agricultural land and improved rural livelihoods	Controlling growth of rural shopping centers so as to protect prime farmlands Zoning and restrictions on prime agricultural land Increase investment in rural livelihoods							

Restricted expansion of rural settlements into ecologically fragile areas	Zoning of ecologically fragile areas to prevent encroachment.	All rural settlements in county		Conserved ecologically fragile settlements.	Reduced number of settlements on ecologically fragile zones.			
	Identify and relocate settlement on ecologically fragile areas.							
Rural housing	Promotion of low-cost housing using local housing technology and materials to construct decent affordable	All rural settlements in county		Improved rural housing conditions Employment opportunities (e.g. through brick-making)	% increase use of low cost modern housing technology Increased numbers of better and permanent housing typologies Lower numbers of dilapidated/ poor quality rural houses Increased numbers of locals engaged in housing material manufacture			
	Encourage research by local universities on appropriate building technology suited for the county's rural areas	Institutions within Kibabii, Sang'alo, Webuye, Kimilili						



12.2.6 GOVERNANCE AND CONFLICT MANAGEMENT STRATEGY

A). GOVERNANCE STRATEGY

PROGRAMMES	PROJECTS	LOCATION	ACTORS	MONITORING AND EVALUATION		TIME FRAME (YEARS)		
				EXPECTED OUTCOMES	INDICATORS	1-3	4-6	7-10
Develop transparency and accountability system	<p>Provision of Checks and balances</p> <p>External audits</p> <p>Involvement of community in annual budget conferences</p>	Applicable to all relevant institutions in the county	<p>National Government</p> <p>County Government</p> <p>Civil Society</p> <p>-Co-operatives</p> <p>-SAGAs</p> <p>-Community</p>	<p>Proper appropriation of development funds</p> <p>Focused on development priorities</p> <p>Combined decision making together with the community on distribution of funds across the sectors</p>	<p>Reports on articulated use of funds</p> <p>Increase in funding options of projects</p> <p>% improved economic growth</p>			
Undertaking performance appraisal	<p>Clear definition of responsibilities and accountabilities</p> <p>Scrutiny committees to review performance</p> <p>Training on ethical standards and regular review of the set standards</p> <p>Formulation of policy guidelines framework</p> <p>Establishing oversight authority to oversee implementation</p>	Applicable to all relevant institutions in the county	<p>National Government</p> <p>County Government</p> <p>All line ministries in the county</p> <p>Civil Society</p> <p>Private Sectors</p> <p>Community</p>	<p>Improved service delivery</p> <p>Alignment of national and county development projects</p>	<p>Number of completed projects</p> <p>Non-duplication of projects</p> <p>Cooperation with civil societies, cooperatives and private sectors</p>			

<p>Establishment of community participation and feedback platforms</p>	<p>Convenient communication channels on plan to undertake development e.g. on radios</p> <p>Conducting of complaints procedures by community forums</p> <p>Simplified community guide on financial matters and projects to be undertaken and devolution system</p>	<p>Applicable to all relevant institutions and stakeholders in the county</p>	<p>-National Government -County Government Civil Society Community</p>	<p>-Informed and awareness by community members on ongoing projects</p> <p>Timely involvement of key stakeholders in the early stages of the project</p>	<p>-Stakeholders of the various projects</p> <p>-Addressing of priority issues as per ward</p>			
<p>Encouraging political goodwill</p>	<p>Have mutual meeting between National and County leaders</p> <p>Protocols for partnership working by creating a conducive environment for investors</p>	<p>Applicable to all stakeholders</p>	<p>National Government County Government Civil Society Private Sectors Co-operatives SAGAs Community</p>	<p>Attraction of more investors</p> <p>Political support on development issues</p>	<p>Enhanced resource mobilization Increased investors forums</p> <p>Increased number of Joint partnerships</p> <p>Equity in distribution of resources</p>			

B). CONFLICT MANAGEMENT STRATEGY

CONFLICT MITIGATION STRATEGIES							
Conflict mitigation	Educate the residents on alternative ways of end the dispute through civil education	Chebuye	National Government County Government Civil Society NGOs FBOs Community elders Religious leaders Media Security personnel Learning institutions	Peaceful coexistence among people Well protected borders	Enhanced security Women empowerment Empowered youth		
	Build more security facilities in strategic areas which are prone to violence Monitor all hate speech activities Ensure that media sensitivity is practiced while covering the conflict Involve youth in peace building activities Monitor porous borders to avoid infiltration of arms Involve women in peace building activities Integrate peace studies in school curriculum	Kibabii, Townships, Simembe, Watonya Border towns (Chepkube, Lwakhakha)					

12.2.6 CAPITAL INVESTMENT PROGRAMME (FINANCIAL STRATEGY)

The projects identified in this plan will be funded through:

- i. County Government of Bungoma
- ii. National government subsidies
- iii. Public private partnerships
- iv. Community Resource Mobilization
- v. Community labor based inputs into maintenance
- vi. Donor Funding

Table 1: Bungoma County Financing Strategy

Funding Mechanisms	Activities to be funded	Actor	Requirements
County Government of Bungoma	County Roads improvement/ regional linkages Soil Health Card Annual Investment Summit Logistics towns	County Government	Political will
National Government and County Government partnerships	Agro-Industrial SEZ Multipurpose dams National Trunk Roads	EPZA County Governments WARMA	Advocacy
Public Private Partnerships	Revival of pan paper using sugar barges Green energy generation Cultural preservation centers Geological Surveys	County Governments Private Sector	Innovative incentives to entice the private sector Rigorous Marketing of PPP opportunities.
Donors and County Collaboration	Soil Health card Scheme Multipurpose dams	County Government Donor agencies and NGOs	Fundraising
Community Resource Mobilization	Sacco Formation	County Government CBOs	Capacity Building and publicity

CHAPTER THIRTEEN: IMPLEMENTATION, MONITORING AND EVALUATION FRAMEWORK

13.1 OVERVIEW

The ability of the planning system to implement policies and proposals is perhaps the most important test of its effectiveness. To this effect, this chapter attempts to lay a roadmap to effective plan implementation, monitoring and evaluation. The chapter consists of the following components:



13.2 COORDINATION FRAMEWORK

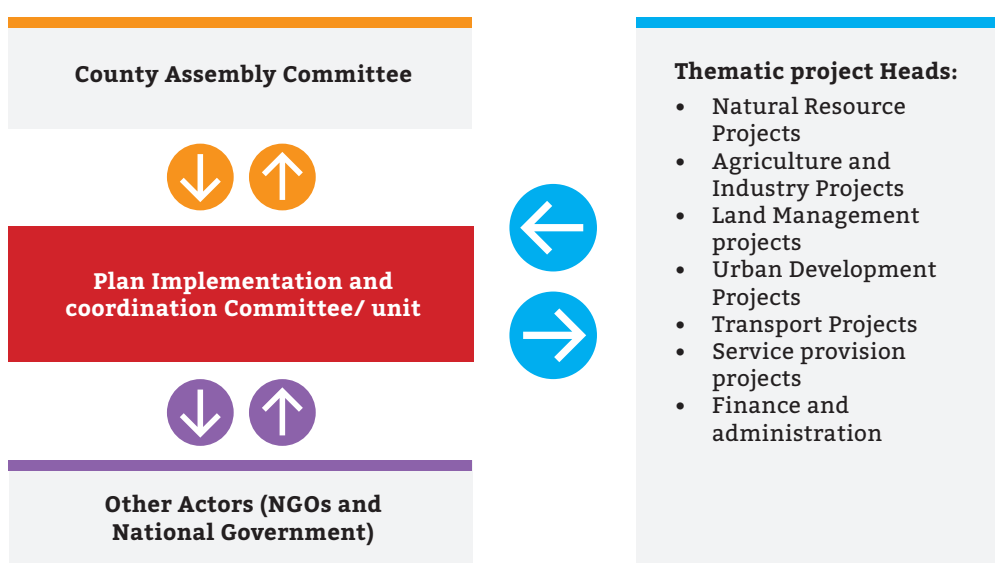
Proper plan implementation relies on a sound institutional set up. Given the multi-disciplinary nature of the County Spatial plan, this plan proposes that an implementation and coordination committee or unit be constituted to facilitate its implementation. The constitution of the committee should be key executive officers from the thematic areas. Each of the key officers should be mandated with strategic projects to implement. Further to this, a key committee from the County assembly will provide oversight to the implementation committee.

This coordination framework desires to maximize the use of available resources, avoid duplication, ensure accountability, reduce implementation delays, conflict and improve the capacity of the members. The functions of the implementation committee will include:

- Understanding and implementing the strategies and projects here in
- Establishing an effective communication and dialogue between all parties involved in implementation.
- Facilitation of administrative procedures
- Availing implementation resources
- Oversee the setting up of reliable baseline data to facilitate M&E functions
- Revision of the plan every five years

The following schematic diagram best illustrates the coordination framework:

Figure 5: Coordination Framework



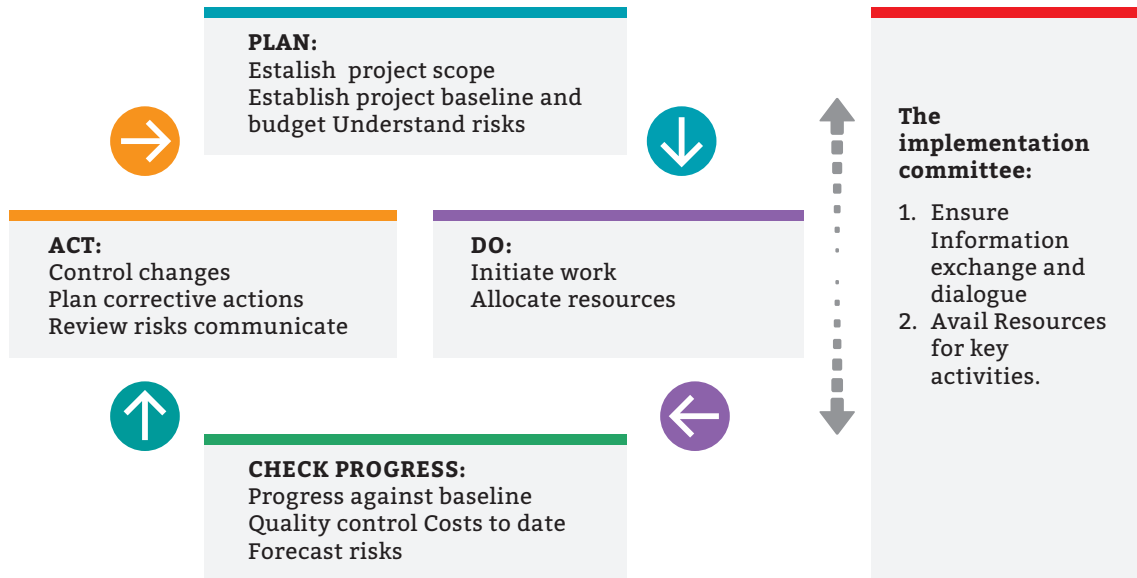
Members of the coordination committee:

The coordination committee will require to have:

- A chief executive officer to manage the implementation process- This individual could be employed or seconded from other departments within the county. He will oversee all functions of the coordination committee including the implementing heads of departments.
- Head of department (HOD)- Lands
- HOD Environment
- HOD agriculture and livestock development
- HOD Planning
- HOD County roads
- HOD Education
- HOD health
- HOD Water and Irrigation
- HOD Tourism
- HOD energy
- HOD Trade and Industry
- HOD finance
- HOD monitoring and evaluation
- HOD on performance appraisal

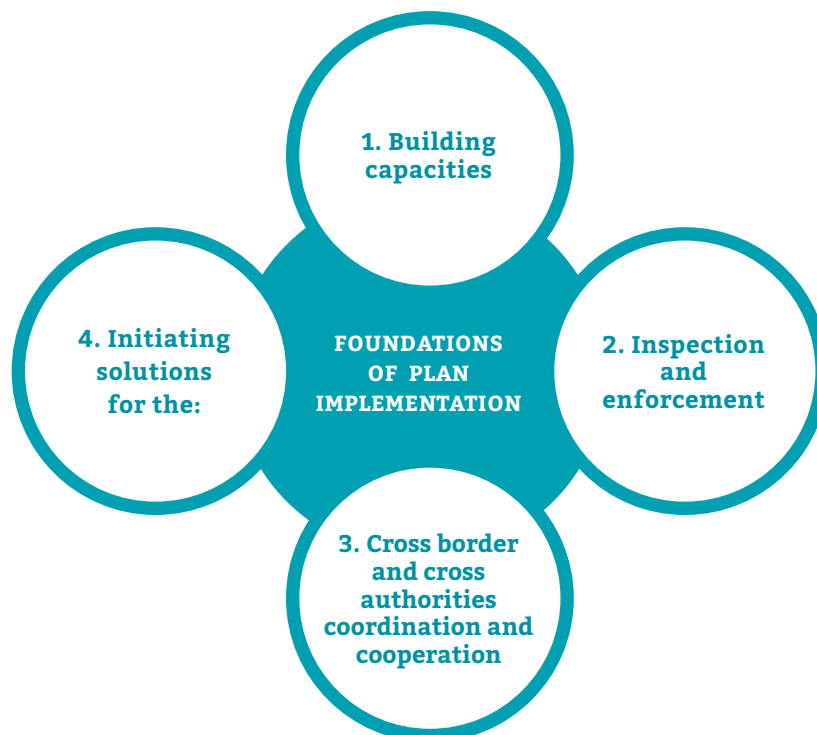
Each strategic project lead is assigned resources and man power to achieve the strategic projects. This head is solely responsible for management of the projects and reports to the coordinating unit. The schematic diagram best illustrates the cycle followed in strategic project implementation.

Figure 6: Strategic project coordination



Benchmarking Plan implementation From Israel’s District Plans:

Israel’s planning system mirrors the British planning system but differs with aspects of innovative policies that equip administration with the tools necessary for achieving its goals. Once plans are prepared in Israel, they become statutory law and the administration is obliged to implement them. They are based on 4 major foundations:



Supporting factors for Israel’s plan implementation

Plan implementation constitutes the formation of an implementation agency with a sufficient toolkit consisting of an all embracing regulatory powers conferred to the planning authorities created for the purposes of implementation:

- To expropriate land for public use up to 40% of all the privately owned land for implementation without being liable for any compensation. This tool has become important in opening up areas where fragmented ownership inhibited implementation.
- To enforce with the Implementing agency can stop constructions and order demolition for violation of zoning regulations, variations in the process of approval must result to improvement of the original plan.

The Israel socio-political context favors successful implementation.

Achievements

Israel has a good rate of plan implementation standing at 66% with this rate being achieved within the intended plan period.

13.3 COMMUNICATION STRATEGY

Why a communication strategy:

- Effective exchange of information between all concerned stakeholders and built consensus with common vision for realization of the Bungoma County Spatial Development Plan
- Efficient communication structures and channels to ensure free flow of information and proper feedback mechanisms between identified stakeholders
- Effective transmission and sharing of information and ideas among various players involved in planning process, implementation, monitoring and evaluation of the Bungoma County Spatial Plan

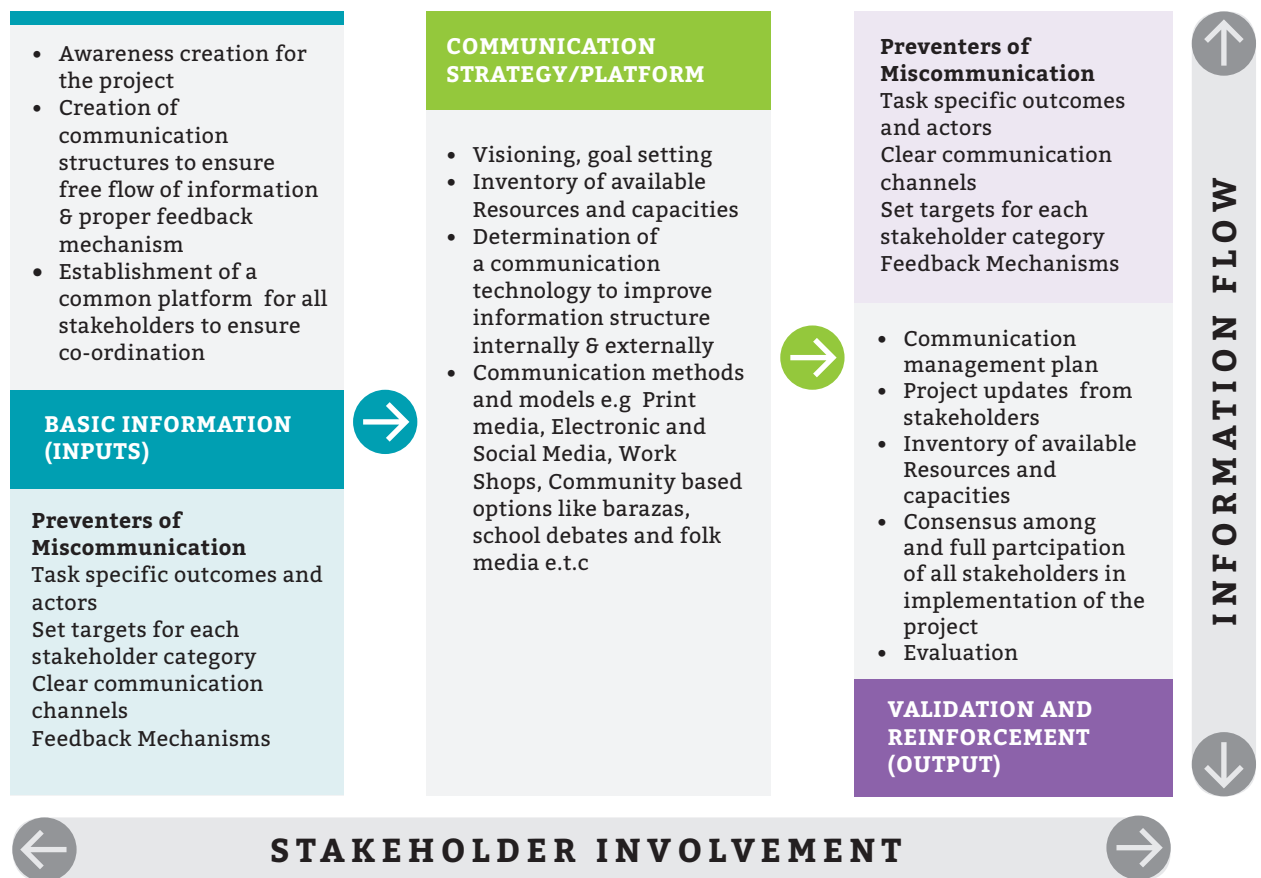
Whom:

Traditional community leaders and community members, Bungoma County Executive and County Assembly Policy makers, Staff of Line government Offices, Donor agencies and development partners, Private Sector

What and how:

Figure 7: Communication Strategy

Cost effective and cost efficient methods based on existing resources to achieve:



PRODUCT OF THE PROCESS ABOVE SHOULD CULMINATE IN A COMMUNICATION ACTION PLAN

WHAT / TASK	RESOURCES FOR TASK	WHEN	HOW	RESPONSIBLE	TARGET AUDIENCES		
					SPONOR	PROJECT TEAM	WHO?
Activity name	Based on existing and required resources	Timelines	Meeting	Project Manager	Approve	Receive	

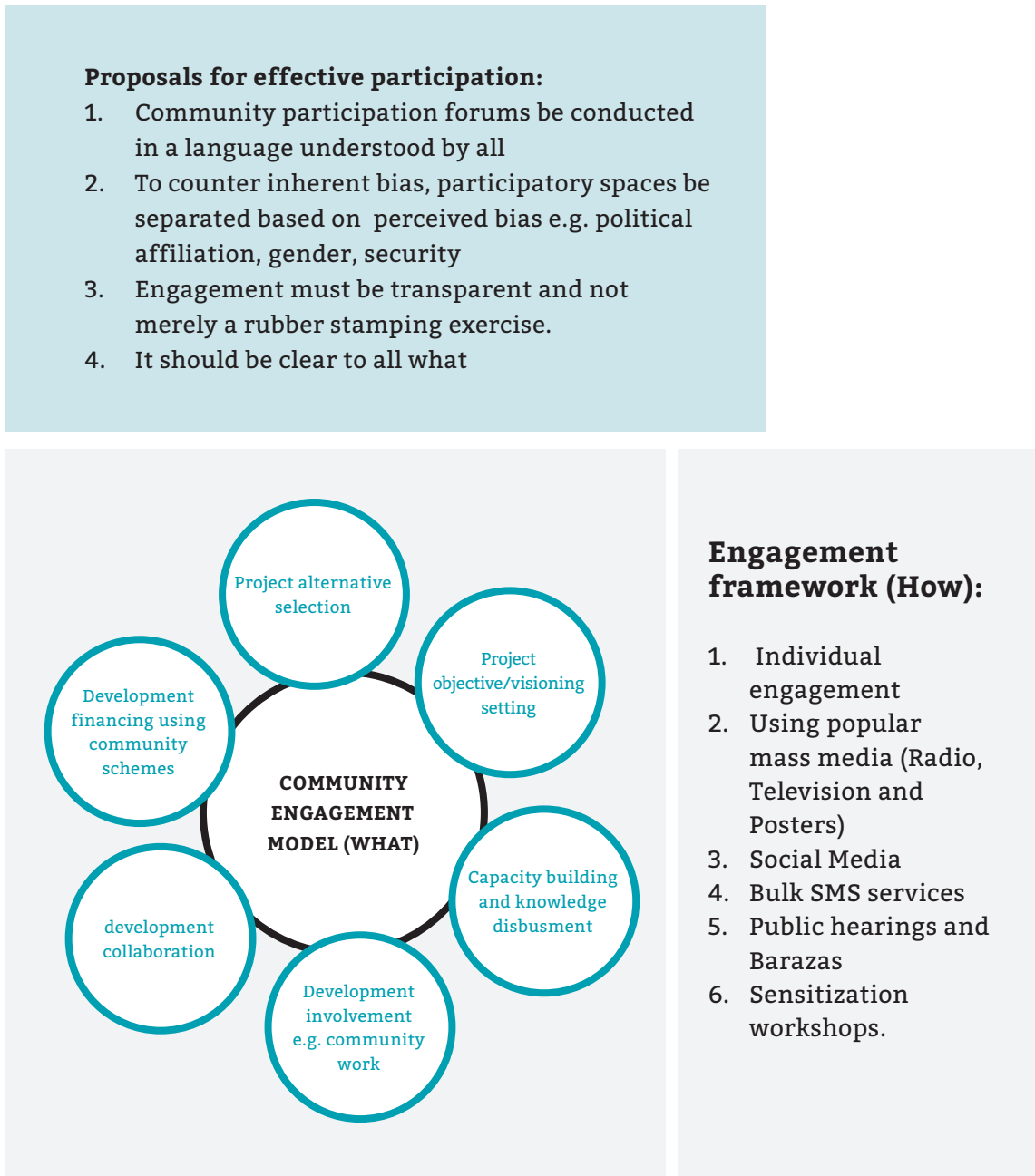
Outcomes:

- Awareness, understanding and support by the communities.
- Creation of communication structures and channels to ensure free flow of information and proper feedback mechanisms.
- Participation and consensus of all stakeholders in the planning and implementation of upgrading.
- A common platform for all stakeholders to facilitate the coordination of the various stakeholder activities in the upgrading.

13.4 COMMUNITY PARTICIPATION FRAMEWORK

The residents of Bungoma County will form a key component for the implementation of this plan. They therefore must be actively engaged throughout the implementation process. This will ensure that effective citizenship is promoted through project ownership and implementation support. Principles of effective engagement should be observed to ensure proposals herein have community goodwill. Principally, the plan may only result to growth if the community owns the implementation.

Figure 8: Community Participation Framework



13.5 CAPACITY BUILDING FRAMEWORK

Capacity is defined as the ability of individuals and organizations or organizational units to perform functions effectively, efficiently and sustainably. Capacity building is an evidence-driven process of strengthening the abilities of individuals, organizations, and systems to perform core functions sustainably, and to continue to improve and develop over time.

Many of the proposals herein are solely dependent on the improved capacity of the residents of Bungoma. This capacity building strategy is meant to help the County Government to enhance their approaches and plans and therefore becomes the prerequisite for successful implementation of the plan.

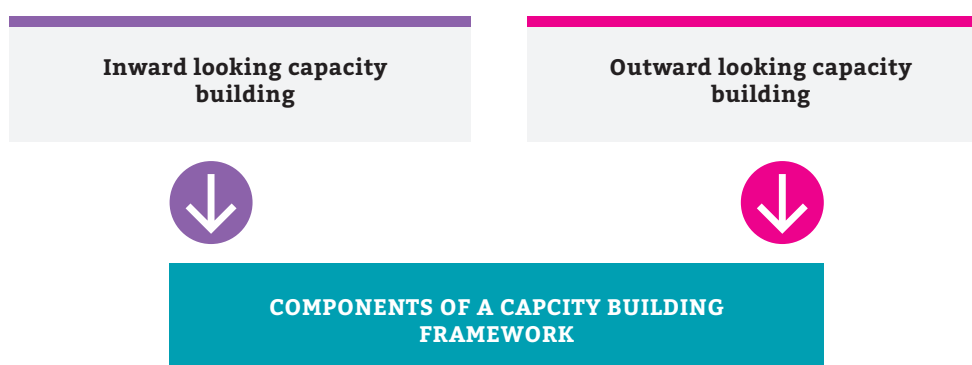


Figure 9: Capacity Building Framework



Proposals

1. To ensure all stakeholders are aware of proposals herein, training for implementation unit and County assembly should be held. This training should extend to all officers in all technical offices.
2. All County Departments within the implementation coordination unit should have capacity building budget and accountability procedure.
3. Capacity building should be part and parcel of the communication plan and every engagement forum.
4. Capacity building forums should follow the principals of effective engagement.
5. Each thematic knowledge areas should hold capacity building workshops annually per sub County.

13.6 IMPLEMENTATION LOG FRAME

(See plan strategies for implementation log frame)

13.7 MONITORING AND EVALUATION LOG FRAME

Monitoring and evaluation of the progress made in implementation of this plan will be the task of the coordination unit.

Table 2: Monitoring and Evaluation Log Frame

Thematic Area	Projects/ objective	Indicators	Source of verification	Assumptions
Natural Resource	Soil Health card scheme and soil Labs	Number of farmers with soil cards Existing soil lab Number of capacity building seminars on soil health cards	County Agriculture Offices	Soil health cards scheme will result to improved soil nutrient information and resulting improved production
	Green Energy Projects	Number of Solar panels installed, Number of hydro power plants, Number of biogas plants established and Number of wind projects started	County Coordination Unit Records. Physical verification	Funds will be available to implement The County can come up with innovative incentives to improve power production Appropriate policy measures will be implemented to promote power production.
	Riparian Reserve Conservation	Length of riparian reserves demarcated	County Environment Offices	Community will understand appreciate and conserve the reserves

	Establishment of multipurpose dams	Number of established Multipurpose dams	County Coordination Unit	
Agriculture, Industry and Trade	Revival of Pan Paper Industry	1. operational industry using sugarcane bagasse as raw material	County Coordination Unit	Technical knowledge and capacity will be available
	Farmer capacity Building and promotion of the SACCO movement	Number of farmer SACCOs established Number of new crop varieties adopted Number of new markets acquired	County Coordination Unit	Farmers will collaborate and work together Markets will be available
	Promotion of Agro Industrial SEZ	Number of PPP agreements for investment into SEZs Number of industrial zones established	County Coordination Unit	Funds will be available to implement
	Promotion of cultural villages and cultural festivals	Number of annual cultural festivals held Number of cultural villages established	County Coordination Unit	The culture can attract visitors to other tourist sites
	Annual Investment summits	Number of investment summits held	County Coordination Unit	Summits will result to investments in the County
Sustainable urbanization	Preparation of Local Physical Development Plans for various towns in Bungoma	Number of urban plans prepared	County Coordination Unit	LPDP will be implemented

Transport	Investment in regional linkages	Number of roads repaired Number of missing links established Number of railway substations established Number of truck bays constructed.	County Transport Office	Funds will be available to implement
Services	Establishment of I-hub	Existing I-hub	County Coordination Office	I-Hub will be complemented by a need for ICT services and a knowledgeable human resource.
	Equipping and construction of identified health facilities	Number of health facilities equipped Number of facilities constructed	County Health Offices	Funds will be available to implement
	Equipping of schools, upgrading and establishing curriculum in technical schools	Number of equipped facilities Number of introduced courses in technical schools Number of new village polytechnics	County Education Office	Funds will be available to implement
	Establishment of a water lab, commercial water points and water supply using dams and boreholes	Existing water lab Number of established water kiosks Number of dams and boreholes constructed	County water offices	Funds will be available to implement

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APENDIX IV: MINUTES FROM STAKEHOLDER VALIDATION FORUMS

SIRISIA SUB-COUNTY

Meeting Venue: Sirisia Social Hall

Date: 21st March, 2016

Time: 3:00pm – 5:55pm

Members Present: See register

Wards represented

- Luandanyi
- Malakisi
- Namwela

ADDITIONAL PROPOSALS FROM STAKEHOLDERS

SECTOR	PROPOSAL	LOCATION
AGRICULTURE	Subsidies coffee inputs and additional research on best quality for Sirisia coffee farmers (KALRO)	Whole sub county
	Establishment of coffee nursery to supply coffee to farmers so as to sustain the county coffee mill	Musese, Chwele
	Establish coffee societies and offer training to coffee farmers	
	Educational tours for farmers to benchmark on successful cooperative management and dairy farming	Tours to Central Kenya
	Pump more funds into existing SACCOS to enable farmers borrow more	
	Establish a milk Co-operative	Sirisia
		Kabulekha
	Reduce soil testing fee (Ksh 1,500 too high for farmers)	
	Establish slaughter houses	Sikhundo or Toroso
	Establishment of a maize miller	Sirisia
	Existing hatchery that needs to be capacitated. Done by local Youth Group	Sirisia
	Londo Youth group run a machine for extracting sunflower oil	Sirisia
	Revival of cattle dips	Around sub-county
	Industrial zone (light industries)	Malakisi
	Areas with tourism potential	Nabulooli rock in Bisunu; Kaptanai caves

	Public park	Near dam
PHYSICAL INFRASTRUCTURE	Put up sanitation facilities in markets	Namwela market; Kolani market
	Drill more boreholes. Currently 1 borehole is serving 800 households	Chebukunyi
	Community water tanks	Bisunu; Chongoyi; Namwanga; Lutaso; Nabulooli; Chebikutuni
	Revive stalled water projects	Ng'oli water project
	Construct modern market with sanitation facilities	Lwakhakha; Namwela; Kolani
	Dams to supply water to locals for domestic use	Kabianga dam (Luandanyi ward); Mutonyi; Nabumukoya; Wabukhonyi
	Tarmacking of roads	Chwele – Lwakhakha road
	Rehabilitation of road and put up bridge	St. Anthony – Malinda S.A school
SOCIAL INFRASTRUCTURE	Stadium	Wabukha
	Social Hall	Namwela
	Establish more ECD facilities	Namwela ward: Toloso primary; Kaptanai primary school
	Maternity facility and ambulance for expectant mothers	Lwandanyi ward
	Rehabilitation center for street children	Sirisia
	Tourism, recreation & I.T hub	Sirisia
	Cemetery	Malakisi; Lwakhakha
	Library	Sirisia
GOVERNANCE	Strategies to ensure projects don't stall in case the government changes	
HUMAN SETTLEMENTS	Plan for upcoming towns	Luandanyi
	SME hub	Lwakhakha
	Industrial hub	Malakisi
	Educational hub	Chwele
NATURAL RESOURCES	Geological survey	Whole sub-county

Stakeholder inputs confirmed by: Mr. Cedrik Malaba
 Seconded by: Juliana Wekunda (Namwela ward)

WEBUYE EAST & WEST

Meeting Venue: Webuye Town Hall

Date: 22nd March, 2016

Time: 11:20am – 14:00pm

Members Present: See register

Wards represented

- Webuye East
- Maraka
- Ndivisi
- Mihuu
- Webuye West
- Bokoli
- Matulo
- Misikhu
- Sitikho

WEBUYE EAST		
SECTOR	PROPOSAL	LOCATION
LAND	Repossession of grabbed land	Webuye town jua kali land; Matulo airstrip land
AGRICULTURE	Strategies to revive coffee farming through sourcing for the best seeds	
	County govt to source for the best livestock breeds suitable for the area	Whole sub-county
	Value addition for sweet potatoes and bananas	Webuye
INDUSTRY	Allocate fertilizer manufacturing function to former Pan paper industry	Pan Paper, Webuye
SOCIAL INFRASTRUCTURE	Establishment of a cultural center	Chetambe Hills (Mihuu)
	Renovation of Pan-paper stadium to include empowerment centers (benchmark with Machakos)	Webuye Pan Paper stadium
	Repurchase 2 acres of land along R. Nzoia to put up hotel	Along R. Nzoia
	Establishment of a library	Ndivisi
	Upgrading of dispensaries and equipping them with ambulances to serve expectant mothers	Mihuu and Nzoia dispensaries
	Establishment of a Teachers Training College	Webuye town
	Establishment of a polytechnic for the physically challenged	Maraka
	Expansion of available facilities for the physically challenged	St. Anthony School for the deaf and St. Theresa school for the mentally challenged

	Security facilities	Nzoia, Abumuchi, Malaki, Lumuli, Sinoko, Wabukhanyi, Mihuu
PHYSICAL INFRASTRUCTURE	Rehabilitation of sewerage system which emits a foul smell	Webuye Central street
	County govt to purchase land and allocate parking for trailers and trucks	Sango
	Marking of zebra crossings	All main roads
	Rehabilitation of roads	Pan-paper – Musi road Molomonyo – Ndivisi – Misemwa road
	Construction of matatu stages	Along the roads
	Construction of a bus par	Webuye town, at the T-Junction
	Small scale biogas production plant	Webuye
ENVIRONMENT	Health hazards which need to be handled immediately:	Solid waste at Sango D.E.B Sewage outlet into R. Nzoia Heavy Chemical liquid waste flowing into R.Nzoia
HUMAN SETTLEMENTS	Repossess Pan-paper estate to be managed by county government	Webuye; Pan paper Estate
WEBUYE WEST		
SECTOR	PROPOSAL	LOCATION
LAND	Make title deed processing process easier by establishing a one stop office	Webuye
ECONOMIC	Establish agricultural offices	Every ward
	Build Sirandufu Coffee Factory on the available 8 acres of land	Bokoli
	Maize collection center	Matisi
	Collection center	Milo Market
	Establish horticultural products (onions, tomatoes) value addition factory	Misikhu
	Establish another factory to use sugarcane bagasse to make paper	Misikhu
PHYSICAL INFRASTRUCTURE	Construct an open air market to avoid congestion along the highway	Webuye town
	Energy provision strategy – Connect all houses with power then installation fee can be done afterwards (benchmark with Uganda)	All rural households
	Overhaul of the sewerage system and modernize it	Webuye
	Rehabilitation of Webuye hospital's septic tank which currently flows into river	Webuye Hospital
	Dumping of solid waste on designated area	Designated area behind Pan paper
	Installation of street lights in smaller markets	Ngwelo, Khalala, Malilo

	Rehabilitation of roads	Milo – Sitikho road Teremi – Matiri road Muslim estate - Kitale
	Installation of drainage facilities	Muslim Estate
SOCIAL INFRASTRUCTURE	Construction of a stadium	Webuye town
	Establishment of a children’s orphanage	WEbuye
	Tourism facilities	Mukhite Falls
	Establish a TTC on already available land	Nangili
	Purchase of an ambulance to serve residents in Milo area	Milo
	Upgrade Kaborom dispensary into a health center since it serves patients from within and neighbouring sub-counties	Kaborom
HUMAN SETTLEMENTS	Plan for upcoming urban areas	Matisi
ENVIRONMENT	Planting of trees (afforestation). Preferable tree species include: Mkuyu, Mokoyoniik and Simotuwoniik	From Kamokoywo river, Aburi village, Kamwenso, Khikhoi village, Sosio village, Chemoge to Masindet
GOVERNANCE	Establishment of a ward fund committee to be based in Webuye town	Webuye

Proposals Confirmed by: Reuben Wechule (Webuye West)

Seconded by: Rebecca Ijente (Webuye East)

MT. ELGON (KAPSAKWONY)

Meeting Venue: Mt. Elgon sub-county HQ offices

Date: 23rd March, 2016

Time: 11:20am – 1:30pm

Members Present: See register

Wards represented

- Kapkateny
- Elgon
- Kaptama

ADDITIONAL PROPOSALS FROM STAKEHOLDERS

SECTOR	PROPOSAL	LOCATION
AGRICULTURE	Revival of cattle dips	Whole sub- county
	Provision of ranching materials for farmers	Whole sub-county
INDUSTRY	Tea factory	Kopsiro
	Establish warehouse facility	Kapsakwony
	Coffee milling corporation	Kapsakwony, Kaptama, Kopsiro

	Water bottling and purification industry	Kapsokwony
	Milk processing factory	Kaptama (land available)
TOURISM	Gate to Mt. Elgon National Park	Kaboiywo
	Tourism circuit	Kaboiywo –Kaptama -Kopsiro
	Tourism initiatives near the 10 caves	Mashanga
	Establishment of a rural camp site	Kaberwa
	Market Mt. Elgon sub-county as a hub of athletics; a lot of talent found here	Whole sub-county
PHYSICAL INFRASTRUCTURE	Street lights	Road leading to Kapsokwony Kapsakwony - Mtoni
	Tap water through gravity from Mt Elgon	Whole sub-county
	Formation of an electricity committee to monitor frequent blackouts	
	Revival of dormant water projects	Kamnoru Samboti Kimobo Community Water project Kamtiong Kamusinga water project
	Community tank needed to tap water from Chemwesus dam	Chemwesus
	Installation of a sewerage system	Kapsakwony and Cheptais
	Establishment of a customs office to open up border	Chepkube
TRANSPORT	Rehabilitation of roads	Chwele – Namwela – Shikhundu – Chelebei road Kipsigon – Rwanda – Chesikaki – Toloso – Cheptais road Kabukeke – Toywandet road Cheptolong – Chepkebai road Kuywa – Kapkateny – Chetonong – Kipsigrok Chebyuk – Kopsiro road
	Expansion and rehabilitation of roads	Kamneru – Namorio – Kimilili road Kimobo – Kimilili road Chemses – Kipchiriak road Mugaa road
SOCIAL INFRASTRUCTURE	Establishment of an MTC	Kaptama
	Establishment of a TTC	Cheptais and Kopsiro
	Constituent college of Kibabii University to be set up	Kopsiro (land available); Kapsokwony (empty buildings available)
	Establish youth polytechnics	Every ward
	Establish an ECD college	Kaptama
	Rescue Center for girls who get pregnant while in school	Chepkurkur
	Upgrade Chepyuk Polytechnic	Kubra
	Hospital required	Kongit and Kipsobula (land was allocated) and Cheptonon

	More medical facilities required in Kopsiro hospital	Kopsiro
	Upgrade Kapsokwony health center into a district hospital	Kapsokwony
	Establish a mortuary at Kapsokwony hospital	Kapsokwony
	Establish a high altitude training center for athletes	
	Cultural center	Kopsiro
	Establish an AP post	Kamtiong'
HUMAN SETTLEMENTS	Establish a market	Maseti market
	Come up with remedies to revive dying towns	Chelebei, Maseti, Rwanda

Proposals Confirmed by: Silas Chepkorong' (Kaptama ward)

Seconded by: Jane Rose Ndiema (Kaptama ward)

MT. ELGON SUB-COUNTY (CHEPTAIS WARD)

Meeting venue: Cheptais CDF Hall

Meeting time: 10.00 a.m

Date: 23rd March 2016

Wards represented

- Cheptais
- Chepyuk
- Chesikaki

SUB-COUNTY ADDITIONAL PROPOSALS

ECONOMY		
PRIORITY AREA	PROPOSALS	LOCATION
Tourism	Establish a tourist center	Every ward
	Promotion of Nasala falls as a tourist attraction site	Chesikaki ward
	Promotion of Daraja Mungu (a unique area between Kenya and Uganda) as a tourist attraction site	Chesurup village, Cheptais ward
	Promotion of special soil painting as a tourist attraction	Kapkwes and Mesa
PRIORITY AREA	PROPOSALS	LOCATION
Land	Repossession of public/trust lands	Naitiri
	Enhance land titling process	Ndalul and Mwei
	Degazettement of Chepyuk Phase 2 and 3	Chepyuk

PRIORITY AREA	PROPOSALS	LOCATION
Natural Resources	Provision of seedlings to practise agroforestry Set up a buffer zone of 3km with tea plantations Construction of gates at Mt. Elgon in every ward	Whole Sub-county
PRIORITY AREA	PROPOSALS	LOCATION
Human Settlements	Every town should be given a function	Whole Sub-county
TRANSPORTATION		
PRIORITY AREA	PROPOSALS	LOCATION
	Kapsokwony-Kopsiro-Namwela-Lwakhakha road should not pass through Namwela, it is far off	
	Construction of bridges	Cheptais-Kimaswa-Kabendo bridge
	Road Transport Tarmacking of: Kaptama- Kapsokwony-Kopsiro-Kipsigon-Chesikaki-Cheptais-Chepkube road Murraming of: Toroso-Tuikut-Kaptoboy-Kamarang-Cheptais forest station- Cheptais Mulatiwa- Chemondi-Kimama-Kapkurongo road Other roads to be captured Cheptais- Chepkube- Chepkube border point (E1232) Kipsigon-Chemwonebei-Daraja Mungu-Tuikut road Masaek- Kopsiro-Chepyuk-Cheptonin Kuria-Tuikut-Cheptais road Toywotet- Soet- Kibomet- Chepyuk road Kipsikirok- Chepokos- Kapsogom- Cheptonon road Kipsigon- Rwanda- Chesikaki- Toroso- Cheptais road Chesikaki- Kaboriot road; Chesikaki- Chesigwo-Chelebei road Chepyuk- Tomoi- Chemomul- Kibusi- join to Laboat Sowes- Kapkwes- Cheptais forest station- Kabero-Kamarang Bukonoi- Emanang- Chemuses- Brukenwo Cheptais- Chesiro bridge- Chebwek- Chesukeem	Chepkube

INFRASTRUCTURE		
PRIORITY AREA	PROPOSALS	LOCATION
Education	Put up a diploma teachers college	Cheptais
	Establish a technical institute and university	Kopsiro
	Establish ECD schools for People with Disabilities	Every ward
	Put up a high altitude training centre	Chepyuk
	Increase number of primary schools	Kebining
Health	Increase the number of health centres	Chepkurkur and Kaimugul
	Upgrading of Cheptais sub-district hospital to a level 5 district hospital	Cheptais
	Upgrade of Tuikut dispensary to a health centre	Chesikaki ward
	Enhance development of local herbalists	Whole Sub-county
Social Amenities	Construction of a morgue	Cheptais
	Put up a public library	Every ward
	Establish talent centres	Cheptais
	Construction of a museum	Cheptais
	Put up a cultural centre	Cheptais
	Construction of a stadium	Cheptais and Cheptoror
	Put up a rehabilitation centre and social hall for People with Disabilities	Cheptais
	Develop playgrounds for People with Disabilities	Cheptais
	Put up police stations	Every ward
PRIORITY AREA	PROPOSALS	LOCATION
Trade/ Commerce	Construction of a modern market	Cheptais
Industry	Put up collection centres	Every ward
	Construction of a maize miller	Cheptais
	Develop a honey cottage industry	Kapsokwony
PRIORITY AREA	PROPOSALS	LOCATION
Conflict Management and Governance	Development of an Equalization fund in Mt. Elgon sub-county Put up a peace building monument in Cheptais Put up churches in every ward to promote peace resolution Overseers such as councillors and moderators to be included in conflict management Establish a peace and training centre in Chesikaki Involvement of People with Disabilities in the conflict management committee	

A.O.B

- Tapping of Kimorong water falls by private investors for H.E.P generation and other social undertakings is ongoing
- There is an existing coffee miller in Chesikaki
- The spelling is Kopsiro not Kosiro
- The spelling is Kapkateny not Kaptei

- The spelling is Kapsokwonyy not Kapsakwony
- Correct Knondo to be Kinondo in Chepkube market- Knondo- Lwakhakha road

Proposer

Peter Bisakaya Simiyu

ID Number: 4386680

Secunder

Jennifer Cheptutu

ID Number: 8169496

BUMULA SUB-COUNTY

Meeting Venue: Bumula sub-county HQ offices

Date: 24th March, 2016

Time: 1430 hrs – 1630hrs

Members Present: See register

Wards represented

- Kabula
- Kimaeti
- Khasoko
- Bumula
- West Bukusu
- South Bukusu
- Siboti

ADDITIONAL PROPOSALS FROM STAKEHOLDERS

SECTOR	PROPOSAL	LOCATION
LAND	Limit agricultural land sizes to 2 acres	Agricultural land in rural area
	Reposses grabbed public land	Bumula
	Transfer Kabula to Kanduyi sub -county	Kabula
NATURAL RESOURCES	Rehabilitation of Natutral spring	Sihirira spring in Khasoko ward
AGRICULTURE & INDUSTRY	Revival of traditional crops which do best within sub-county. These include: Cassava, wimbi and millet	Whole sub-county
	Cassava processing factory	Kimaeti or Mayanja
	Collapsed agricultural projects which need to be revived	Dormant green houses in Musakasa and Kibachege Fish pond in Bumula
	Revival of collapsed factories	Banana factory in Mukwa Peanut factory in Musakasa
	Chicken slaughterhouse	Kimaeti
	Animal feeds collection center	Lunakwe
	Establish an animal feeds plant	Lunakwe
	Proper distribution of collection centers	To include Kimaeti
	Construction of market shades	Bumula, Bilobo and Watoya

	Establish an export processing zone	Bumula
TOURISM	Areas with tourism potential	R. Sio (as source of R. Nile) Sudi Mausoleum Namachanja dam
PHYSICAL INFRASTRUCTURE	Installation of security lights	Sango and Siboti
	Fencing of dams to prevent encroachment	Kisawai dam in Musakasa Kimwanga dam
	Allocate area to dispose solid waste	Mateka
	Construct public latrines	Sango market
	Installation of a community water tank	Kabula
	Rehabilitation of dams	Bosio, Nangili and Silanga dams
	Water projects such as dams and boreholes	Sikata, Mateka, Nandingwa, Bumula
	Installation of drainage facilities to prevent flooding	Siboti ward
	Bus station	Bumula
	Sewerage system	Bumula and Mayanja
	Installation of lightning arresters	Whole sub-county
	Revive Nandingwa water project	Nandingwa in South Bukusu
	Rehabilitation of roads	Sio – Nasianda – Bunabobi – Myanga – Malakisi road Siboti(Health center) – Musakasa – Sango road Namanga – Nasianda – Buyofu road Musikoma – Mateka – Khasoko road (to be tarmacked) Mateka – Muanda Bungoma road (needs murraming) Sikinga market – Mabusi market (gravelling)
SOCIAL INFRASTRUCTURE	Construction of more ECD centers since there's a severe shortage	Whole sub –county
	Establish a health center	Natima
	Upgrade Kimaeti Dispensary	Kimaeti
	Establish a rehabilitation center	Bumula hospital
	Establish day care centers for elderly citizens	One per ward
	Home for the elderly	Bumula and Kimaeti
	Follow up strategies for youth trained in local polytechnics	Whole sub-county
	Constituent University	Bumula
	Elavate Kabula Youth Polytechnic into a Technical Institute	Kabula
	Establish a TTC	Bumula town
	Equip local polytechnics	Whole sub-county
	Establish centers of excellence	Two per ward

	Adult education facility	Bumula
	Establishment of a library	Bumula
	Construction of a community hall	Bumula
	Community craft centers	Per ward
	Construction of a stadium	Watoya
	Establish ICT Centers	One per ward
	Motuary facilities needed	Every health center
GOVERNANCE	Recommend employment of a local oversight authority Stakeholder forums to be done per ward	
HUMAN SETTLEMENTS	Planning of upcoming urban areas	Nasianda, Mugore, Buyofu, Watoya

Proposals Confirmed by: Bonventure Wasikoyo (Kimaeti ward)

Seconded by: Eunice Mamati (Siboti ward)

KABUCHAI SUB-COUNTY

Meeting venue: Musese CDF Hall

Meeting time: 1000hrs

Date: 21st March 2016

Wards represented

- Luuya/Bwake
- Chwele/Kabuchai
- West Nalondo
- Mukuyuni

SUB-COUNTY ADDITIONAL PROPOSALS

ECONOMY		
PRIORITY AREA	PROPOSALS	LOCATION
Agriculture	Education to farmers on value chain maximization Advice on crop maximization by agricultural extension officers Provision of facilities to measure fertilizer acidity Introduction of emerging crops such as Rosella, Moringa, Ndelema	Whole Sub-County
Livestock	Cross breeding of livestock to foster value addition	Whole Sub-County
	Construction of cattle dips	Kimalewa, Mukuyuni, Maliki
	Put up A.I centres	Every ward
Tourism	Promotion of Chebuk (Henry Keere) to be a tourist attraction site Promotion of Wandera Kere memorial to be a tourist attraction site (hero of Mzee Jomo Kenyatta)	

Mining	Put up a stone crushing industry Enhancement of stone blasting equipment	Within the sub-county
PRIORITY AREA	PROPOSALS	LOCATION
Land	Fasten the succession process	Kibichori
	Repossession of public/trust lands	Kabuchai
TRANSPORTATION		
PRIORITY AREA	PROPOSALS	LOCATION
Road Transport Chebukaka-Kimalewa- Kibisi road	Reduce truck traffic	Nalondo- Bokoli-Kimilili road
Mabanga-Chwele road		
Chebukaka market- R. Kuywa-Kimalewa market- R.Kibisi connecting Chebkwabi market- Kimilili town		
	Establish modal split to reduce accident cases	Lusaka road
	Construction of Boda boda sheds	Every trading centre
	Construction of standard width roads	Whole Sub-County
	Put up bumps	Mabanga- Sikata road
	Construction of bridges	R. Kuywa bridge, R. Kibisi bridge, R.Khalaba, R. Namosi, Along Kabuchai-Marakaru road
	Reorganization of Chwele bus park	Chwele
	Murraming of all rural roads	Whole Sub-County
Air Transport	Put up an airstrip	Sichenge
INFRASTRUCTURE		
PRIORITY AREA	PROPOSALS	LOCATION
Water & Sanitation	Revival of the stalled sanitation facilities	Chwele town centre
	Put up toilet facilities	Every market centre
	Harnessing water from luucho hills	Luucho hills
	Put up water storage reservoirs to source from springs and	R.Sio
	Construction of a dam	R. Chemwa
	Establish a dumping site	Chwele
	Revival of Khalaba water project to provide water to Musese and other areas like Kanduyi	Musese
Sewerage	Construction of sewerage system Construction of storm water drainage systems	Kabuchai town
Electricity	Tap Hydro Electric Power	R. Kuywa

	Provision of alternative power options e.g. solar, generators	Chwele, Nalondo, Chebukwa
	Put up electricity lines	Chwele market
Education	Rank the schools to identify National and County schools	Whole Sub-county
	Upgrading of Sigulu and Marachi polytechnics	Sigulu, Marachi
	Build a Farmers Training Centre	Kabuchai
	Construction of vocational training centre for People With Disabilities	Within Kabuchai ward
	Skills development to the youth	Whole Sub-county
Health	Construction of a Sub-County hospital	Kabuchai
	Establish a mortuary	Within Kabuchai sub-county
	Expansion of the referral hospital	Kabuchai
	Equip the existing health centres with drugs and health personnel	Whole Sub-county
Social Amenities	Reconstruction of Muyai & Muliro dam to be People's park	Muyai & Muliro dam
	Establish youth empowerment centres	Within the sub-county
	Construction of a public library	Mukhweya
	Develop a cultural centre	Within the sub-county
	Establish prison services	Within the sub-county
PRIORITY AREA	PROPOSALS	LOCATION
Trade/ Commerce	Provision of jua kali sheds	All trade centres
	Installation of security lights	All market centres
	Supervision of food sold in open markets by public health officers	Whole Sub-county
Industry	Renovate milk coller	Kimalewa Development Co-operative Society
	Construction of a dairy plant	Kimalewa Development Co-operative Society
	Construction of milk factory	Kabuchai
	Establishment of a maize miller plant	Kabuchai
	Establishment of a dairy collection centre	Chebukaka
	Animal feeds factory, sweets and biscuits factory	Nzoia
	Establish a biogas plant	Within the sub-county
Spread out the industries to different parts of the sub-county	Whole Sub-county	

PRIORITY AREA	PROPOSALS	
Leadership and governance	<ul style="list-style-type: none"> MCA and Ward administrators to ensure they perform allocated duties County to ensure equitable allocation of employment positions Fair allocation of bursary funds Oversight authority to oversee the implementation of projects Reduce prolonged land cases in courts to enable development 	

AOB

- Move the tomato processing plant from Chwele to luanda
- On-going water treatment plant in Kapkatei
- On-going mobile soil testing lab process

Confirmed by:

Proposer:

Hellen Lukhale (Mukuyuni ward)

Secunder:

Vincent Sikuku (Nalondo ward)

KANDUYI SUB-COUNTY

Meeting venue: Kanduyi Red cross hall

Meeting time: 10.00 a.m

Date: 24th March 2016

Wards represented

- Musikoma ward
- Khalaba ward
- Bukembe East ward
- Bukembe West ward
- Sang'alo West ward
- Sang'alo East ward
- Marakari/Tuuti ward

SUB-COUNTY ADDITIONAL PROPOSALS

ECONOMY		
PRIORITY AREA	PROPOSALS	LOCATION
Agriculture	Capacity building on alternative crops to grow apart from sugarcane	Sang'alo East
	Improve agriculture extension services and train farmers on agribusiness	Whole Sub-county
	Put up green houses	Whole Sub-county
Livestock	<ul style="list-style-type: none"> Enable affordable Artificial Insemination services Training of the vets on the A.I process 	Whole Sub-county

Tourism	Promotion of Mwibale rocks (second largest rocks in Africa) as tourist attraction site	Mwibale location
	Sikele Siamulia (A rock with all kinds of fauna) is a potential tourist site	Sang'alo west
	Mwibale Mwanja water fall is a potential tourist site	Mwibale location
	Promotion of Namasanda dam sanctuary to be a Tourist site	Musikoma
	Encourage investors in tourism	Whole Sub-county
Mining	Establish a Stone crushing factory	Buema
HUMAN SETTLEMENTS AND HOUSING		
PRIORITY AREA	PROPOSALS	LOCATION
	Develop Housing policy for upcoming universities	Marakari/tuuti
	Encourage a certain housing policy in market centres to draw people to these centres in Marakari	Marakari/tuuti
	Provision for People with Disabilities in all buildings to enable access to them	Whole Sub-county
TRANSPORTATION		
PRIORITY AREA	PROPOSALS	LOCATION
Road Transport Tarmacking of: Sikata- A104 road- Chwele	Put up fly over to reduce accident cases	Sikata and around Chebkube market
	Decongestion of some roads	Bukembe-Nzoia Factory road
Mabanga- Ekitale- Sang'alo		Kanduyi- Bungoma town road
Mabanga- Ekitale centre- Bungoma- Kakamega road	Designate truck parking bays and set rules on high speeding to avoid the high death rates	Bukembe
	Put up a bus stage	Bukembe
	Put up boda boda stage	Bungoma town
Dorofu- Musikoma road	Complete Sangalo- Bulondo road to join Mumias- Butere road	
Bukembe-Mwibale road		
Feeder roads Oldmex- Mateka- Nabuyofu- Musikoma road		
Air Transport	Rehabilitation of the Kanduyi airstrip	Kanduyi

INFRASTRUCTURE

PRIORITY AREA	PROPOSALS	LOCATION
Water & Sanitation	Establish irrigation schemes	Sang'alo East
	Create dams for flood control, water supply and irrigation	Along R. Nzoia and R. Kuywa
	Provision of water supply systems	Marakari/tuuti
	Pump water from Pombo Tano in township ward to supply to Kibabii area	Kibabii
	Put up water kiosks to create employment for women	Marakari
	Build water storage reservoirs	All wards
	Provide litter bins	All towns
	Put up dumping sites	Every ward
	Develop a solid waste recycle plant to recycle plastic and waste papers	Kanduyi or Sang'alo west ward
Sewerage and Drainage	Construction of permanent drainage systems	Kanduyi, Khalaba
Electricity and Energy	Put up street lights	Makutano junction, Kanduyi, Kibabii university
	Tapping of solar energy	Kanduyi
Education	Sang'alo Agriculture Institute to be the main ICT centre for Bungoma county	Sang'alo
	Every sub-county should have a university branch	Whole Sub-county
	Promote PPPs in university development	Whole Sub-county
	Put up non-formal education centres	Every ward
	Establish middle level technical colleges	Every ward
	Improve facilities and personnel in existing middle level colleges	Whole Sub-county
	Increase number of ECD, primary and polytechnics	Khalaba ward
	Increase number of primary schools	Sang'alo West ward
	Zoning to be done in the university districts	
	Build special schools for People with Disabilities	Marakari/tuuti
	Develop a film, drama, music production house	Kanduyi
	Every primary school to have a secondary school to ease congestion	Whole Sub-county
Health	Build a referral hospital	Sang'alo West
	Construction of dispensaries	Every ward
Social Amenities	Establish a Street children rehabilitation centre	Kanduyi
	Put up homes for the elderly	Mabanga and Bukembe
	Establish a public library centre	Sang'alo
	Put up police posts	Every village
	Build a cultural centre (circumcision done here)	Sang'alo, Mayanja
	Establish rehabilitation centre for People With Disabilities	Bukembe West

	Develop recreation centres e.g. golf courses through PPPs	Within sub-county
	Set up a resource centre that has a library, E-resources, audio visual materials or equipment	Bungoma town
	Build a crematorium for the Asian community	Bungoma town
	Establish an annual event for the running champions	Bungoma town
PRIORITY AREA	PROPOSALS	LOCATION
Trade/ Commerce	Create trading kiosks spaces	Marakari
	Develop jua kali sheds	Township, Bukembe, Khalaba
	Physical planning process	Bukembe market
Industry	Revival of coffee processing plant	Mayanja
	Construction of a tomato processing plant	KCC Area-Muslim
	Construction of a molasses and bagasse factory	Bukembe East
	Construction of a wines and spirirts industry	Bukembe East
	Put up a milk cooling plant	Bukembe
	Establish a water bottling industry	Sang'alo East
	Relocation of warehouses outside town	Near R. Khalaba
	Develop Kanduyi as an Industrial centre	Kanduyi
PRIORITY AREA	PROPOSALS	LOCATION
Leadershp and Governance	Address the issue of lack of water supply systems from the railway line onwards Encourage the youth to join polytechnics Encourage investors in tourism to create employment	

A.O.B

- Correct Mjini is in Township ward not Kanduyi ward
- Ongoing plans to put up a dumping site
- Kanduyi stadium can be used as a truck parking bay when not in use

Proposer

Rev. Walusaka (Township ward)

Seconder

Emily Mulati (Khalaba ward)

KIMILILI SUB-COUNTY

Meeting venue: Kimilili Friends church

Meeting time: 3.45-6.00 p.m.

Date: 23rd March 2016

Wards represented

- Kibingei
- Kimilili
- Maeni
- Kamukuywa

SUB-COUNTY ADDITIONAL PROPOSALS

ECONOMY		
PRIORITY AREA	PROPOSALS	LOCATION
Livestock	Provision of poultry incubators	Every ward
	Construction and revival of cattle dips	Chebkwabi, Khwiroro, Maeni
Tourism	Promotion of Elijah Wanameme to be a tourist attraction site and Build hotels in the area	Chebkwabi
	Promotion of Daraja ya Mungu to be a tourist attraction site	Kibingei
PRIORITY AREA	PROPOSALS	LOCATION
Land	Repossession of public/trust lands	Kimilili town
PRIORITY AREA	PROPOSALS	LOCATION
Natural Resources	Agro forestry along the rivers to protect the riparian reserve Springs protection by fencing the edges	Whole Sub-County
TRANSPORTATION		
PROPOSALS	PROPOSALS	LOCATION
Road Transport	Construction of bridges	Kapketi-Khwiroro-Kimilili road-Nasusi- Chesamis road Kimilili market- Sitati club-Kibisi river
	Construction of drainage facilities	All roads

	<p>Roads to be captured Major road: Kimalewa-Khwiroro-Kimilili-Nasusi-Chesamis-Bur Burton- Trans nzoia border</p> <p>Feeder roads: Chebkwabi- Kimilili-Maeni-Kamukuywa road</p> <p>Kimilili- Kamukuywa- Sikendu-Wabukhonyi road</p> <p>Kibisi market- Sitabicha-Kibingei road</p> <p>Namisi area roads: Matila- Namisi primary school; Road to rwanda</p> <p>Kimilili-Kamusinga-Kamtiong road; Kimilili- Kambini road; Kimilili-Kambtiong- Dream land road</p>	
INFRASTRUCTURE		
PRIORITY AREA	PROPOSALS	LOCATION
Water & Sanitation	Establish a dumping site	Kamukuywa, Kimilili, sitabicha
	Revival of dams as they are undergoing encoachment	Matili dam, Lutonyi dam, Misikhu dam
Sewerage	Construction of a sewerage system	Kimilili
Education	Increase the number of primary and secondary schools	Kimilili sub-county
	Put up a university	Kimilili, Kamusinga
	Construction of dormitories for especially girls boarding schools	Whole Sub-County
	Construction of KMTC	Kimilili
Health	Establishment of special schools for People with Disabilities	Kimilili
	Upgrading and expansion of existing Sub-county hospital	Kimilili Sub-county hospital
	Increase number of helath centres	Chebkwabi, Kibisi, Maeni
Social Amenities	Construction of a dispensary	Sitabicha
	Put up a counselling centre	Kimilili town
	Allocation of cemetery space	Kimilili
PRIORITY AREA	PROPOSALS	LOCATION
Trade/ Commerce	Enable access to loan facilities	Whole sub-county
Industry	Establish collection centres	Maeni, Kamukuywa
	Construction of a National Cereal Board	Maeni
	Revival of the dairy cooling plant	Kimilili
	Construction of a banana millers industry	Kimilili
	Construction of a tomato factory	Maeni

PRIORITY AREA	PROPOSALS	LOCATION
Leadership and governance	Monitoring and evaluation to be done by community members Civic education to the community on: County governance, How to prioritize the projects in terms of vision 2030, Importance of community participation on every activity	Whole sub-county

A.O.B

- The tomato factory stalled because it was not intended for that area. Supposed to be in Nasusu (Maeni)
- Kimilili has been proposed to be the ICT center for the County
- Kamukuywa-Chesamis road and Kimilili- Matisi- Misikhu road already made by national government

Proposer

Name: Maurice Makokha

Phone Number: 0711 384 194

Seconded

Name: Mariam Nafula Makokha

Phone Number: 0726 393 507

TONGAREN SUB-COUNTY

Meeting venue: Tongaren Sub-County HQ offices

Meeting time: 3.30-5.30 p.m.

Date: 22nd March 2016

Wards represented

- Naitiri/Kabuyefwe
- Ndal
- Soysambu
- Tongaren
- Milima

SUB-COUNTY ADDITIONAL PROPOSALS

ECONOMY		
PRIORITY AREA	PROPOSALS	LOCATION
Agriculture	Investment in weather prediction equipment	Whole Sub-County
	Establishment of a research centre to advise on suitable crop breeds e.g. maize in Tongaren	
	Lower cost of farm inputs	
Livestock	Construction of livestock markets	Mariti market
	Establish slaughter houses. There is available land (2acres)	Tongaren centre.
	Promote fish farming in the small dams	Kapchenge, Sinoko dams

Mining	Promote stone blasting and sand harvesting	Rocks at tabani
PRIORITY AREA	PROPOSALS	LOCATION
Land	Repossession of public/trust lands	Naitiri
	Enhance land titling process	Ndal, Mwei
TRANSPORTATION		
PRIORITY AREA	PROPOSALS	LOCATION
Road Transport	Construction of Boda boda sheds	Every trading centre
Tarmacking of: Misikhu- Matunda rd	Put up Naitiri bus park. There is existing land for it	Naitiri
	Construction of bridges	Taban-Nyamira bridge across R. Kiminini
	Distribution of roads	All wards
INFRASTRUCTURE		
PRIORITY AREA	PROPOSALS	LOCATION
Water & Sanitation	Put up toilet facilities	Every market centre
	Revival of piped water systems in households	Households
Education	Establish an empowerment facility for ECD teachers	Ndal, Tongaren, Mukuyuni
	Put up university. There is existing land set for it.	Taban
Health	Upgrade and Equip all health centres with equipment and drugs	All health centres
	Put up cottage hospital. There is existing land for it.	Tongaren.
	Renovation of the old staff houses and buildings	Tongaren health centre
	Provision of piped water	Tongaren health centre
	Construction of a sub-district hospital	Ndal
Social Amenities	Develop recreation centre	Tongaren centre
	Establish recreation centres in existing small dams	Kapchenge, Sinoko dams
	Establish a court (1acre of land already allocated)	Tongaren town
	Put up a public library	Ndal
	Construction of a social hall	Taban
	Put up a stadium	Mbakalo
PRIORITY AREA	PROPOSALS	LOCATION
Trade/ Commerce	Provision of jua kali sheds	All the wards
Industry	Renovate the milk cooling plant	Kimalewa co-operative
	Construction of a dairy plant	Kimalewa Development Co-operative Society
	Establishment of a dairy collection centre	Chebukaka
	Establish National Cereal Board	Tongaren town
	Construction of a maize miller	Soysambu, Brigadier
	Put up a milk collection centre	Ndal

PRIORITY AREA	PROPOSALS	LOCATION
Leadership and Governance	Involvement of the community members in planning of the land use activities Ensure the boda boda operators are licensed and trained	Whole Sub-county

AOB

- There is 50 acres of public land available at Tabani to put up a university, market and maize miller

Confirmed by:

Proposer

Moses Kisa Wekesa (Soysambu ward)

Secunder

Sally Makhali (Ndalul ward)

List of Acronyms

ADB	African Development Bank
AFC	Agricultural Finance Corporation
AI	Artificial Insemination
CIDP	County Integrated Spatial Plan
CSDP	County Spatial Development plan
ECD	Early Childhood Development Centre
FPE	Free Primary Education
GIS	Geographical Information System
GPS	Ground Positioning System
ICT	Information Communication Technology
ISCRIC	International Soil Reference and Information Centre
KALRO	Kenya Agriculture and Livestock Research Organization
KFS	Kenya Forest Service
KIE	Kenya Industrial Estate
KNBS	Kenya National Bureau of Statistics
KPLC	Kenya Power and Lighting Company
KRB	Kenya Roads Board
M&E	Monitoring and Evaluation
MSEA	Micro and Small Enterprise Authority
MSMES	Micro, Small and Medium Enterprises
NEMA	National Environmental Management Authority
NGO	Non-Government Organizations
NMIMTS	Non-Motorized and Intermediate Means of Transport
NSP	National Spatial Plan
NWMP	National Water Master Plan
NZOWASCO	Nzoia Water and Sewerage Company
PDP	Part Development Plan
REA	Rural Electrification Authority
RELF	Rural Electrification Levy Fund
SACCO	Savings and Credit Cooperative Society
SEZ	Special Economic Zone
SGR	Standard Gauge Railway
SPSS	Statistical Package for Social Sciences
UNCTAD	United Nations Conference on Trade and Development
USAID	United States Agency for International Development
VCT	Voluntary Counseling Centers
WARMA	Water Resource Management Authority
WHO	World Health Organization

Prepared by:



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